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AN ESSAY

ON

PROLAPSE OF THE FUNIS,

WITH A NEW METHOD OF TREATMENT.

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In the records of the art of obstetrics, from very early dates, frequent allusion to the occurrence of prolapse of the funis umbilicalis, as a complication of labor, may be found. Its dangers, the terrible mortality attendant upon it, and the extreme difficulty encompassing its successful treatment, were all fully known to the forefathers of medicine. From the time of the first recognition of its gravity to the present day, accoucheurs have not ceased in their efforts to discover some means by which the child might be rescued from its imminent peril; and from time to time instruments, ingeniously devised for return- the cord to the uterus, and operative procedures, having for their object the rapid removal of the child from the pelvis, have been advised; until at length we find ourselves surrounded by a multiplicity of methods, each of which has its strong supporters, but in none of which all can unite as reliable, and free from danger to mother or to child.

It is into an examination of these means, and the mortality which in spite of them has marked this accident, that I am now about to enter; and after having reviewed them, it is my design respectfully to lay before the Academy a plan of treat-

ment which, as far as my knowledge extends, has heretofore escaped the notice of the profession.

Frequency.

Fortunate indeed is it for the statistics of midwifery that prolapse of the funis is not more frequently met with. To use the words of Velpeau, we may say that, "without being rare, prolapse of the funis is not very common," and we may have a definite idea concerning its comparative frequency by bearing in mind that it occurs a little oftener than transverse presentation. In the excellent statistical tables of Dr. Churchill, it is stated to have occurred 401 times in 98,512 cases, or about 1 in 245½. M. Schuré, of Strasbourg, states it as 1 in 265, and Michaelis, of Kiel, as one in 282.

Causes.

When we refer to the condition of the parts in utero, our surprise is excited at its not occurring more frequently, especially as those circumstances computed as causes so commonly exist. Among these we may enumerate—great length of cord; excess of liquor amnii; anything preventing the presenting part from filling up the os and superior strait, as obliquity of the uterus, deformity of the pelvis, or malpresentation; sudden escape of the waters while the woman is standing or sitting; situation of the placenta near the os, etc., etc. These causes, however, concern our present subject less than those which render the accident so rebellious to treatment after it has once occurred, and into which we will examine when upon the subject of treatment.

Mortality.

Until the time of De la Motte, it was thought that death occurred to the fœtus in these cases from the cord becoming chilled, the circulating fluid becoming coagulated, and its flow onward thus prevented. He it was who first corrected this

view, and advocated that which is at present accepted—that it is the pressure of the descending part of the fœtus upon the canal through which all its blood passes to the placenta, its temporary lung, which interferes with its perviousness, and destroys life by asphyxia. How destructive to fœtal life is this pressure, we may learn by again glancing at the tables of Dr. Churchill. The mortality is truly appalling. In 355 cases of prolapse, collected by Dr. Churchill, 220 children, considerably over one half, were lost, and many of these after the mother's safety had been jeopardized by an operation instituted for the benefit of her offspring. In 107 of these cases version was performed, and in 37 the forceps were applied. But that we may have the matter more fully before us, I transcribe the table from which I quote:

Authors.	Cases of Prolapse.	Children Lost.	Delivered by Version.	Delivered by Forceps.
Mr. Giffard, ...	21	17	15	5
Dr. Smellie, ...	6	2	5	—
Mr. Perfect, ...	4	3	4	—
Dr. Jos. Clarke,.....	66	49	—	—
Dr. Merriman, ...	8	4	—	—
Dr. Ramsbotham, ...	1	1	1	—
Dr. Collins,.....	97	70	—	—
Dr. Cusack, ...	5	5	—	—
Mr. Gregory, ...	7	4	—	—
Dr. Beatty,..... ..	6	4	—	—
Mr. Lever, ...	6	2	—	—
Dr. Churchill, ...	7	5	—	—
Mme. Boivin,.....	38	9	25	13
Mme. Lachapelle, ...	26	7	10	13
Dr. Voigtel,.....	1	—	1	—
Dr. Jansen, ...	86	38	46	6

In the work of Drs. McClintock and Hardy on obstetrics, 37 cases of prolapse of the funis are reported, in which 25 children were lost.

As regards the comparative mortality of the accident, I know of nothing which will convey a better idea than a survey of the causes of fœtal death in the eastern district of the Royal Maternity Charity, London, between the years 1828 and 1850, as given by Dr. F. H. Ramsbotham:

Total number of still-born children,	1822
Occurring with breech presentation,	253
" " transverse presentation,	97
" " placental presentation,	50
" " hæmorrhage,	85
" " lingering labor,	62
" " prolapse of the funis,	128

It will thus be seen that a larger mortality was due to this than to any other cause, except breech presentation.

We must not forget, however, in looking at these statistics, that in many cases the cord was pulseless before aid could be procured; as, for instance, in Dr. Collins' cases it was so in 22 of the 73 fatal cases reported by him, and in 11 of the 25 fatal cases reported by Drs. McClintock and Hardy.

Treatment.

The indications for the treatment of this accident may be divided into three. 1st, we may get the cord out of danger by placing it in some part of the pelvis where it will be free from pressure as the child passes it; 2d, we may leave the cord in the position which it has assumed, and remove the child rapidly by version, if above the superior strait, by the forceps, if below it; and 3d, we may return the prolapsed part to the uterus, and keep it there until the presenting part has so far descended as to fill the outlet of the pelvis.

The first of these methods I will mention merely, for it is fraught with so much risk to the child that no one at the present day would rely upon it alone, but being guided by the pulsations of the cord, would, in case of need, at once avail himself of the speedy delivery practicable by the forceps.

Of the second method, I would only remark, that version is an operation at all times dangerous to both mother and child, and the application of forceps is (though not in the same degree hazardous) by no means a harmless procedure. These cases, too, often happen to those inexperienced in the operations of midwifery, and whose want of skill makes the delivery necessarily slow and proportionately dangerous to the child; while,

on the other hand, should they seek aid, the indications for interference will, in the majority of cases, have ceased to exist with the cessation of funic pulsation, before it is obtained.

Lastly, statistics prove that these operations by no means ensure us success in our efforts for fœtal life, for of the 21 cases treated by Giffard, 15 were delivered by version and 5 by the forceps, and yet 17 were lost; the 4 cases by Perfect were all turned, and 3 were lost; and of 86 by Jansen, 46 were delivered by version and 6 by forceps, and yet the mortality to the children was 38.

I do not wish to be understood as saying that fœtal life is not saved by these operations, but as merely desirous of proving that there is still much room for improvement in the resources of art in the management of these cases.

In the accomplishment of the third indication, many methods have been recommended. I will not, however, weary the Academy with a detail of them, but merely mention those upon which most reliance has been placed. Mauriceau, believing that death was due to chilling of the cord, advised that it be wrapped in a linen cloth soaked in warm wine, and returned to the uterus, and the practice of placing the prolapsed part in an envelope of cloth or leather has been since advised and practised by Mackenzie, Denman, and others, though for somewhat different reasons from those which actuated Mauriceau in so doing. Osiander, Hopkins, and others have attached bits of sponge to the part before returning it, and good results have been reported of the practice. Ordinarily, the cord is simply pushed up by the fingers, and an endeavor (which, however, rarely succeeds) is made to keep it above the head until the cavity of the pelvis is occupied by the latter. As the hand thus placed is apt to displace the presenting part, or difficulty occur in its introduction, instruments for replacing it have been invented, among which those of Dudan, Mme. Mercier and Duchamp may be mentioned; or the use of an ordinary gum elastic catheter, with a tape passed through it, may be resorted to when these cannot be obtained. Michaelis advised that the cord be carried to the fundus uteri, whose contracting fibres will often retain it; and in the *London Medical Journal* for

1786, Sir Richard Croft published two cases which he had treated successfully by carrying it up and hitching it over the limbs of the child. It is almost useless to remark, that after the hand had been thus introduced, version would have been a much more certain procedure.

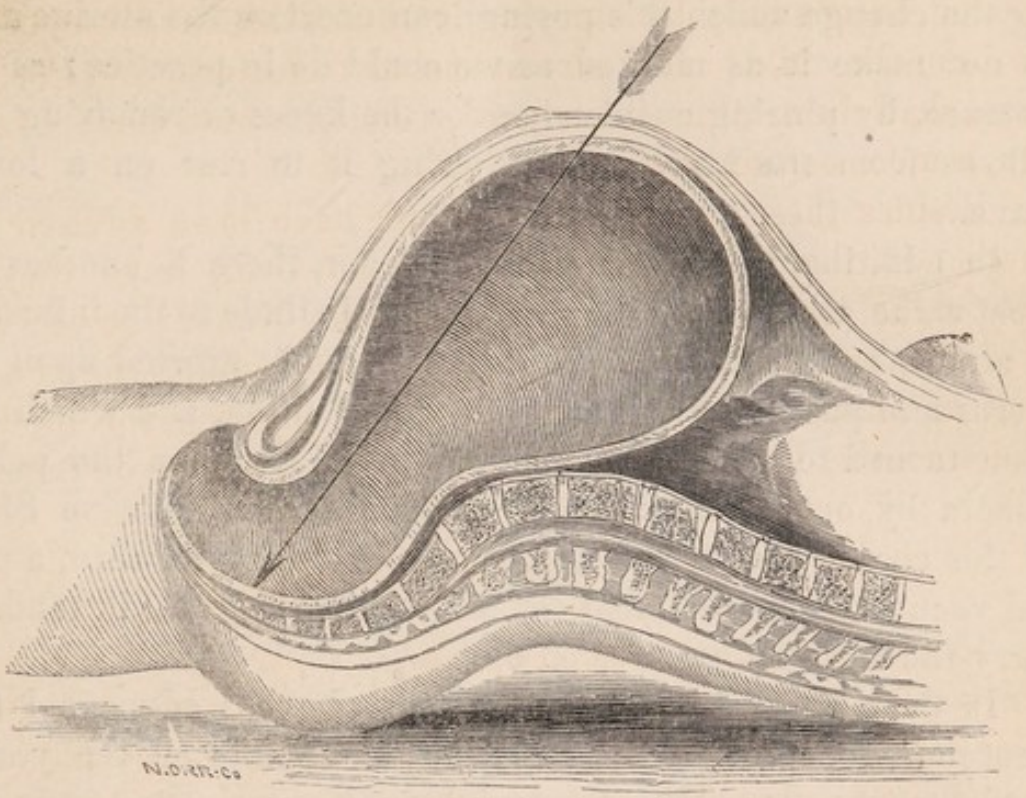
Besides these means, many others have been advised and lauded in their day; so inefficient, however, have they all proved, as to lead an Italian accoucheur, Nanoni, to ask whether it is not better to let the case proceed uninterfered with, that at least we may be assured of not injuring the mother; and another, Mazzoni, to advise that such a course be pursued.

Postural Treatment recommended.

In a course of lectures on obstetrics, delivered by me in the University Medical College of this city, about two years ago, I closely investigated this subject, and came to the following conclusions: first, that the causes of the persistence of this accident (whatever may at first have produced it) reduced themselves to two, the slippery nature of the displaced part and the inclined plane offered it by the uterus, by which to roll out of its cavity;* and second, that the only rational mode of treatment would be inverting this plane, and thus turning to our advantage not only it, but the lubricity of the cord, which ordinarily constitutes the main barrier to our success. This I found could be readily accomplished by placing the woman on her knees, with the head down upon the bed, in the posture assumed by eastern nations in worship, and now often resorted to in surgical operations upon the uterus and vagina. Let it be remembered that the axis of the uterus is a line running from the umbilicus, or a little above it, to the coccyx, and it will be seen that by placing the woman in this position it will be entirely inverted. The accompanying diagrams, after one illustrating Dr. Tyler Smith's lectures, will however show this better than it can be explained by words.

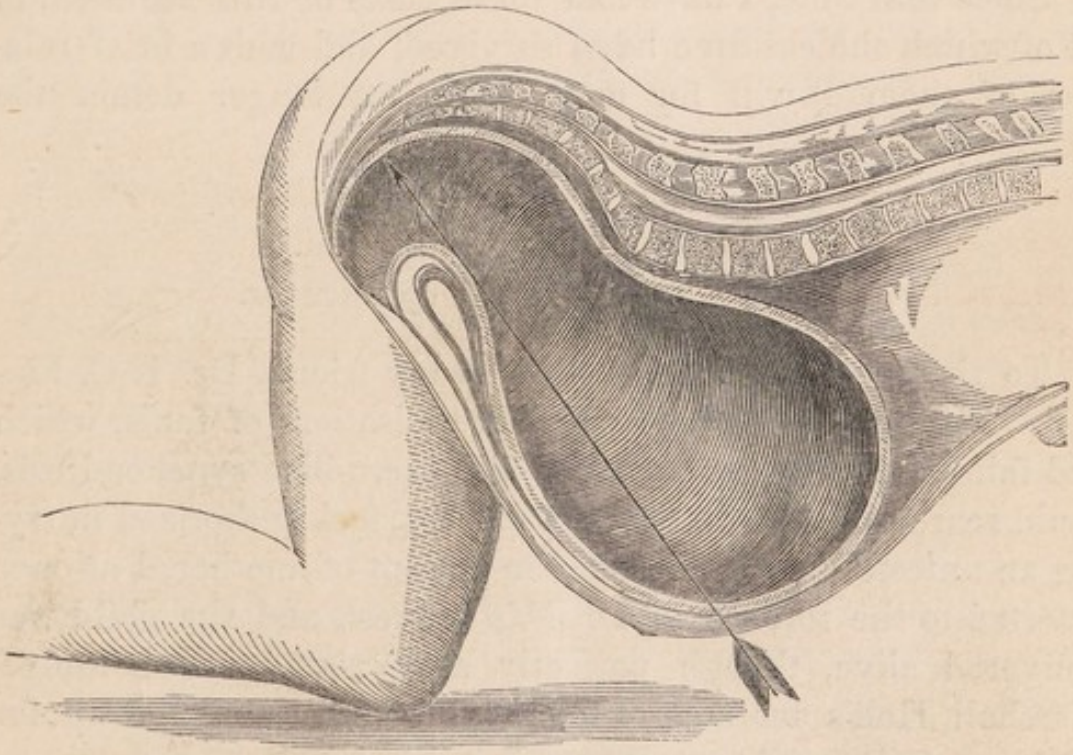
* When the woman is placed on the side, the axis of the uterus is not so favorable to prolapse as when on the back; still it aids very much in causing the accident.

Fig. 1.



In Fig. 1 the arrow represents the direction of the uterine axis, which is forwards and downwards; the woman being on her back.

Fig. 2.



In Fig. 2 this axis is represented inverted by the change of position.

I would remark, that these diagrams, so far from exaggerating the change which this posture can exert on the uterine axis, do not make it as marked as we could do in practice; as for instance, by placing cushions under the knees or removing the pillows from the head, and allowing it to rest on a lower plane.

In addition to these means, however, there is another of great value, which we bring to our aid. I allude to the influence of atmospheric pressure, which is powerfully exerted upon the uterus and parts surrounding it, in this position, and which has been turned to so good account in operations upon the pelvic viscera by our distinguished countryman, Dr. Marion Sims, of this city. The uterus and intestines falling forward, a partial vacuum is created, and the air rushing in to fill it, tends to carry the cord before it.

In the course of lectures alluded to above, I advocated this treatment for prolapse of the funis, and exhorted the young graduates who were about entering upon practice to test it and report its results, while I myself patiently waited until experiment might enable me to determine upon the value of a method which theory strongly recommended.

Since that time, I have had three cases of this accident, in all of which the children have survived, and with a brief relation of them I will for a few minutes longer detain the Academy.

Case No. 1.—*Delivered by Forceps.*

To the first case I was called by my friend, Dr. T. C. Finnell. The head was fully engaged; pulsations of funis, which had fallen into vagina, opposite right sacro-iliac synchondrosis, could scarcely be felt, and as I did not feel authorized in trying an untested experiment on the patient of another, I at once resorted to the forceps, at Dr. F.'s request, and the child was delivered alive, though perfectly asphyxiated. The use of Marshall Hall's method of artificial respiration, kept up for fifteen or twenty minutes, restored it.

Case No. 2.—Postural Treatment.

In the second case I was more fortunate, and fully tested the method which I have just proposed. I was called at 4 A.M. to see M. R., a robust Irish woman, who was under the care of two of my students, Mr. J. H. Erskine and Mr. Sparks, who gave me the following account of the case. The labor had been perfectly natural until the rupture of the bag of waters, which had occurred about forty minutes before my arrival, and while the woman was sitting on a chair by her bed. They had ordered her immediately to bed, and upon examining, found a loop of the funis (about four or five inches, as they computed) in the vagina. This they returned to the uterus, and endeavored to keep up with the hand, and while their messenger was gone in search of me, they constructed of whalebone and tape the porte-cordon recommended by Dr. Ramsbotham, and brought it to their assistance. Although the cord could be readily returned to the uterus, nothing could keep it there, and each successive pain seemed to increase the extent of its prolapse. Upon examining, I found a loop of cord in the vagina, just beginning to suffer from pressure by the approaching head, which during a pain so enfeebled its pulsations that I feared to let another occur without interference. Taking it between my fingers, I passed the whole hand into the vagina, and carrying the funis beyond the head, there endeavored to retain it during the next pain. But, although the part immediately in my grasp could be kept up, another fell down, and it was only after subsidence of the uterine effort that it could all be again replaced. The next pain extruded a larger loop, however, than I had at first found down, and as my fears for the child rendered me unwilling to delay longer, I ceased essaying what had now failed over six or eight times.

Explaining to the woman my object in changing her position, I now directed her to place herself on her knees, as already described, and after the change, proceeded to return the cord. It had disappeared, and could no longer be found below the head. Upon passing the fingers alongside the head, I detected

it, but as it was pulsating, I simply kept my finger upon it. A slight pain which was present now passed off, and to my great gratification the cord slipped away without any assistance on my part, and did not again appear. As soon as the os was contracted over the head, the woman resumed her position on the back, and in a short time a living child was born. The cord was very long, but an exact measurement was not made.

Case No. 3.—*Postural Treatment.*

The third case is, in point of treatment, nearly a repetition of the second. I was called to Mrs. H., a multipara, who had been in labor for nearly seven hours. Upon examining, I found the os fully dilated, and the bag of waters perfect, but I was unable to reach the presenting part. Passing up two fingers, however, revealed the presence of the head, which was jutting obliquely forward against the pubis, which had, to all appearance, prevented its entrance into the superior strait. In the bag I detected the funis in large amount, and could have treated the case more successfully by the postural means of which I have spoken without evacuating the waters; wishing, however, to have no doubt resting upon the experiment which I was about to repeat, I punctured the bag with my finger, and allowed all the amniotic fluid to escape. Instantly the whole cord seemed to descend, and literally filled the vagina. Passing it all up into the uterus with considerable difficulty and expenditure of time, I awaited the next pain, which soon came on, and in spite of my efforts, and the obstruction offered by my hand, which still remained in the vagina, forced down a large amount of the funis. This I repeated three times with the same result.

Placing the woman on her knees, with the chest and side of the face resting flat upon the bed, I now waited to see whether, as in the case of M. R., the cord would disappear without assistance. She was no sooner thus placed, however, than the head, which, as already stated, was, from some obliquity of the uterus, directed too much forward, entered at once, with a violent uterine effort, into the pelvis, and the cord, not disappearing, was in great danger of immediate compression.

As soon as the pain had passed off, I pressed it beyond the head gently, piece by piece. No part once pushed up returned, and as soon as it was all replaced, labor proceeded without trouble, and in two hours a living child was born. After the head had passed out of the os, the patient resumed the position in which I had found her.

The cord, which measured 2½ feet, appeared to have rested, after its disappearance, at the upper part of the chest, in the crevice of the neck, where I observed it as the child was clearing the perineum.

Rules for Postural Treatment.

Should I be permitted, from the small experience which I have had in this method of treatment, to offer a few suggestions, not elicited by the histories of the cases just read, I should advise:

1st. That if the cord be detected in the unruptured bag, the woman be at once placed in position before escape of the waters, and that no efforts at return of the prolapsed part be made by the hand. The position alone will, I believe, cause its return to the uterus; and if it does not, we may do so manually as soon as the waters escape.

2d. That if the pelvis be so fully occupied by the presenting part as to preclude return of the cord by the hand, a gum elastic catheter and tape be used as a porte-cordon.

And 3d. That no manipulations be commenced until the woman be placed in position.

I cannot conclude these remarks without expressing regret that they should be offered so feebly supported by clinical facts, and in justice to myself, must state the reasons which have reconciled me to their presentation at the present time. First, it appeared to me that the plan proposed was based upon views sufficiently rational to recommend it, at least for consideration and trial; second, were I to wait for an accumulation of cases occurring once in 250 labors, I should have to postpone for a long time what I conscientiously believe may at once be

4th That the whole hand
introduced into the vagina

productive of good; and third, I have desired to draw the attention of the profession to the point, rather as a suggestion than a settled fact, and cordially to invite them to test it by experience and give it its proper place, whether of credit or of discredit, among the resources of obstetrics.