

to take place. Of this plan I have no personal experience. When there is no rotation, more than usual care should be taken with the perineum, which is necessarily much stretched by the rounded occiput. Indeed, the risk to the perineum is very considerable, and, even with the greatest care, it may be impossible to avoid laceration.

Bearing these precautions in mind, delivery with the forceps in occipito-posterior positions offers no special difficulties or dangers.

[Version by the Vertex.—The following are the teachings of several eminent American obstetricians upon the management of occipito-posterior positions:

1. "In primitive oblique occipito-posterior positions of the head Nature will almost without exception cause spontaneous rotation of the occiput to the symphysis pubis; but to favor this movement the bag of waters should be preserved."

2. "Spontaneous rotation, as a rule, does not begin until the head meets with resistance from the floor of the pelvis: hence no effort to force rotation should be made until Nature has proved herself inadequate."

3. "Where rotation forward is prevented, it is probably due to the position of the occiput having been originally directly backward, and only becoming oblique after the descent of the head into the pelvis, the position of the child's body preventing the anterior movement of its occiput; that is, the sixth position of Hodge has changed into a fourth or fifth, but will not without assistance become a first or second."

4. "If, then, rotation is not spontaneous after the head reaches the floor of the pelvis, version by the vertex will not take place, except it be forced by the vectis or forceps."

Use of the Hand in Occipito-posterior Positions.—The introduction of the hand for the purpose of effecting version by the vertex was strongly advocated by the late Dr. John S. Parry, of Philadelphia, whose hand was very small and thin, and could be used to great advantage. Prof. Ottavio Morisani, of Naples, is said to use his with even greater success, because of its smaller size. Large hands should not be used in primiparæ. By this manœuvre I once brought an occiput under the pubic arch of a primipara in three pains, after she had labored for hours to deliver herself.—ED.]

CHAPTER VIII.

PRESENTATIONS OF THE SHOULDER, ARM, OR TRUNK.— COMPLEX PRESENTATIONS.—PROLAPSE OF THE FUNIS.

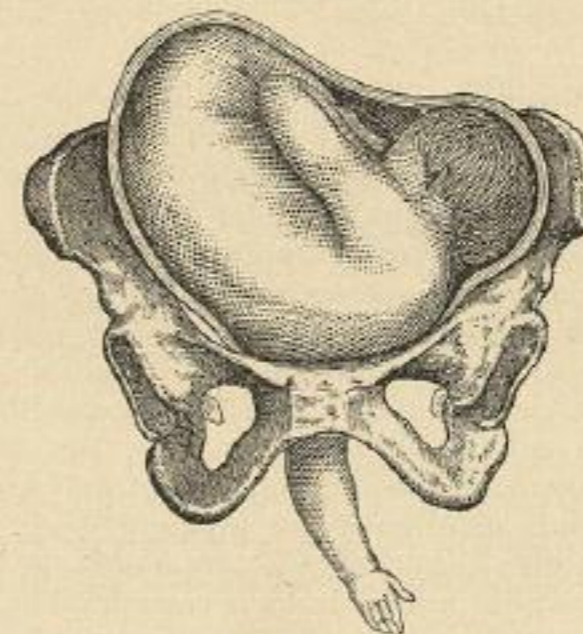
IN the presentations already considered the long diameter of the fetus corresponded with that of the uterine cavity, and in all of them the birth of the child by the maternal efforts was the general and

normal termination of labor. We have now to discuss those important cases in which the long diameter of the fetus and uterus do not correspond, but in which the long fetal diameter lies obliquely across the uterine cavity. In the large majority of these it is either the shoulder or some part of the upper extremity that presents; for it is an admitted fact that, although other parts of the body, such as the back or abdomen, may, in exceptional cases, lie over the os at an early period of labor, yet, as labor progresses, such presentations are almost always converted into those of the upper extremity.

For all practical purposes we may confine ourselves to a consideration of *shoulder* presentations; the further subdivision of these into *elbow* or *hand* presentations being no more necessary than the division of pelvic presentations into breech, knee, and footling cases, since the mechanism and management are identical, whatever part of the upper extremity presents.

There is this great distinction between the presentations we are now considering and those already treated of, that, on account of the relations of the fetus to the pelvis, delivery by the natural powers is impossible, except under special and very unusual circumstances that can never be relied upon. Intervention on the part of the accoucheur is, therefore, absolutely essential, and the safety of both the mother and child depends upon the early detection of the abnormal position of the fetus; for the necessary treatment, which is comparatively easy and safe before labor has been long in progress, becomes most difficult and hazardous if there have been much delay.

FIG. 121.



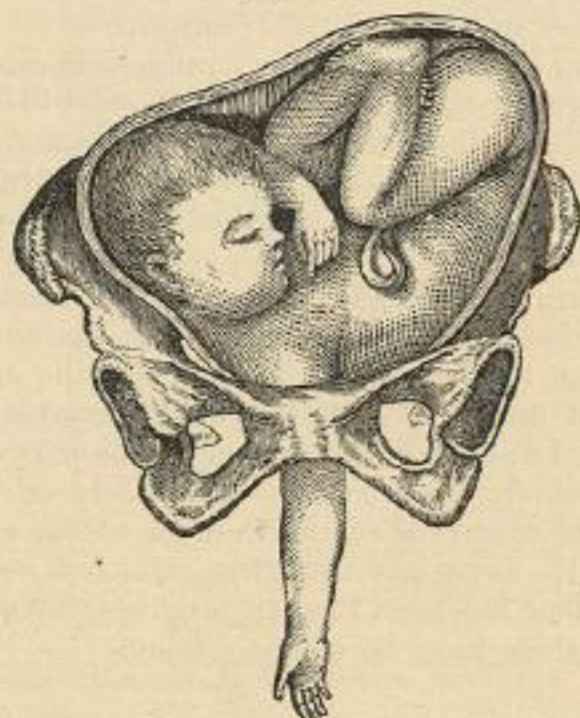
Dorso-anterior presentation of the arm (S.L.A.).

Position of the Fœtus.—Presentations of the upper extremity or trunk are often spoken of as *transverse presentations* or *cross-births*; but both of these terms are misleading, as they imply that the fetus is placed transversely in the uterine cavity, or that it lies directly across the pelvic brim. As a matter of fact, this is never the case, for

the child lies obliquely in the uterus, not indeed in its long axis, but in one intermediate between its long and transverse diameters.

Two great divisions of shoulder presentations are recognized: the one in which the back of the child looks to the abdomen of the mother (Fig. 121), and the other in which the back of the child is turned toward the spine of the mother (Fig. 122). Each of these is sub-

Fig. 122.



Dorso-posterior presentation of the arm (s.d.p.).

divided into two subsidiary classes, according as the head of the child is placed in the right or left iliac fossa. Thus in dorso-anterior positions, if the head lie in the left iliac fossa (left scapula anterior—scapula-læva anterior, S.L.A.), the right shoulder of the child presents; if in the right iliac fossa (right scapula anterior—scapula-dextra anterior, S.D.A.), the left. So in dorso-posterior positions, if the head lie in the left iliac fossa (left scapula posterior—scapula-læva posterior, S.L.P.), the left shoulder presents; if in the right, the right (right scapula posterior—scapula-dextra posterior, S.D.P.).¹ Of the two classes the dorso-anterior positions are more common—in the proportion, it is said, of two to one.

The causes of shoulder presentation are not well known. Amongst those most commonly mentioned are prematurity of the fetus, and excess of liquor amnii; either of these, by increasing the mobility of the fetus *in utero*, would probably have considerable influence. The fact that it occurs much more frequently amongst premature births has long been recognized. Undue obliquity of the uterus has probably some influence, since the early pains might cause the presenting part to hitch against the pelvic brim, and the shoulders to descend. An unusually low attachment of the placenta to the inferior segment of the

¹ Left and right refer in this nomenclature, as in all positions, to the left and right side of the mother without regard to that of the child.

uterine cavity has been mentioned as a predisposing cause. In consequence of this the head does not lie so readily in the lower uterine segment, and is apt to slip up into one of the iliac fossæ. This is supposed to explain the frequency of arm presentation in cases of partial or complete placenta prævia. Danyau and Wigand believe that shoulder presentations are favored by irregularity in the shape of the uterine cavity, especially a relative increase in its transverse diameter. This theory has been generally discredited by writers, and it is certainly not susceptible of proof; but it seems far from unlikely that some peculiarity of shape may exist, not capable of recognition, but sufficient to influence the position of the fetus. How otherwise are we to explain those remarkable cases, many of which are recorded, in which similar malpositions occurred in many successive labors? Thus Joulin refers to a patient who had an arm presentation in three successive pregnancies, and to another who had shoulder presentation in three out of four labors, while Eustache, of Lille,¹ describes the case of a patient who had thirteen shoulder presentations out of fourteen deliveries. Certainly, such constant recurrences of the same abnormality could only be explained on the hypothesis of some very persistent cause such as that referred to. Pinard² states that shoulder presentations are seven times more common in multiparæ than in primiparæ, in consequence, as he believes, of the laxity of the abdominal walls in the former, which allows the uterus to fall forward, and thus prevents the head entering the pelvic brim in the latter weeks of pregnancy. It is probable that merely accidental causes have most influence in the production of shoulder presentation, such as falls, or undue pressure exerted on the abdomen by badly fitting or tight stays. Partially transverse positions during pregnancy are certainly much more common than is generally believed, and may often be detected by abdominal palpation. The tendency is for such malpositions to be righted either before labor sets in, or in the early period of labor; but it is quite easy to understand how any persistent pressure, applied in the manner indicated, may perpetuate a position which otherwise would have been only temporary.

Prognosis and Frequency.—According to Churchill's statistics, shoulder presentations occur about once in 260 cases; that is, only slightly less frequently than those of the face. Spiegelberg found it 1 in 180; while in France the combined statistics of several accoucheurs show a frequency of 1 in 117. The prognosis to both the mother and child is much more unfavorable; for he estimates that out of 235 cases, 1 in 9 of the mothers and half the children were lost. The prognosis in each individual case will, of course, vary much with the period of delivery at which the malposition is recognized. If detected early, interference is easy, and the prognosis ought to be good; whereas there are few obstetric difficulties more trying than a case of shoulder presentation, in which the necessary treatment has been delayed until the presenting part has been tightly jammed into the cavity of the pelvis.

Diagnosis.—Bearing this fact in mind, the paramount necessity of

¹ Nouv. Arch. d'Obstét. et Gyn., 1889.

² Annal. d'Hyg. pub. et de Méd., Jan. 1879.

an accurate diagnosis will be apparent; and it is specially important that we should be able not only to detect that a shoulder or arm is presenting, but that we should, if possible, determine which it is, and how the body and head of the child are placed. The existence of a shoulder presentation is not generally suspected until the first vaginal examination is made during labor. The practitioner will then be struck with the absence of the rounded mass of the fetal head, and, if the os be opened and the membranes protruding, by their elongated form, which is common to this and to other malpresentations. If the presenting part be too high to reach, as is often the case at an early period of labor, an endeavor should at once be made to ascertain the fetal position by abdominal examination. This is the more important as it is much more easy to recognize presentations of the shoulder in this way than those of the breech or foot; and, at so early a period, it is often not only possible but comparatively easy, to alter the position of the fetus by abdominal manipulation alone and thus avoid the necessity of the more serious form of version. The method of detecting a shoulder presentation by examination of the abdomen has already been described (p. 129), and need not be repeated. The chief points to look for are, the altered shape of the uterus, and two solid masses, the head and the breech, one in either iliac fossa. The facility with which these parts may be recognized varies much in different patients. In thin women, with lax abdominal parietes, they can be easily felt, while in very stout women it may be impossible. Failing this method, we must rely on vaginal examinations; although, before the membranes are ruptured, and when the presenting part is high in the pelvis, it is not always easy to gain accurate information in this way. The difficulty is increased by the paramount importance of retaining the membranes intact as long as possible. It should be remembered, therefore, that when a presentation of the superior extremity is suspected, the necessary examinations should only be made in the intervals between the pains when the membranes are lax, and never when they are rendered tense by the uterine contractions.

As either the shoulder, the elbow, or the hand may present, it will be best to describe the peculiarities of each separately, and the means of distinguishing to which side of the body the presenting part belongs.

1. The shoulder is recognized as a round smooth prominence, at one point of which may often be felt the sharp edge of the acromion. If the finger can be passed sufficiently high, it may be possible to feel the clavicle, and the spine of the scapula. A still more complete examination may enable us to detect the ribs and the intercostal spaces, which would be quite conclusive as to the nature of the presentation, and there is nothing resembling them in any other part of the body. At the side of the shoulder, the hollow of the axilla may generally be made out.

In order to ascertain the position of the child, we have to find out in which iliac fossa the head lies. This may be done in two ways: 1st, the head may be felt through the abdominal parietes by palpation; and 2d, since the axilla always points toward the feet, if it point to

the left side the head must lie in the right iliac fossa; if to the right, the head must be placed in the left iliac fossa. Again, the spine of the scapula must correspond to the back of the child, the clavicle to its abdomen; and, by feeling one or the other, we know whether we have to do with a dorso-anterior or dorso-posterior position. If we cannot satisfactorily determine the position by these means, it is quite legitimate practice to bring down the arm carefully, provided the membranes are ruptured, so as to examine the hand, which will be easily recognized as right or left. This expedient will decide the point; but it is one which it is better to avoid, if possible, for it not only slightly increases the difficulty of turning, although perhaps not very materially, but the arm might possibly be injured in the endeavor to bring it down.

The only part of the body likely to be taken for the shoulder is the breech; but in that its larger size, the groove in which the genital organs lie, the second prominence formed by the other buttock, and the sacral spinous processes, are sufficient to prevent a mistake.

2. The elbow is rarely felt at the os, and may be readily recognized by the sharp prominence of the olecranon, situated between two lesser prominences, the condyles. As the elbow always points toward the feet, the position of the fetus can be easily ascertained.

3. The hand is easy to recognize, and can only be confounded with the foot. It can be distinguished by its borders being of the same thickness, by the fingers being wider apart and more readily separated from each other than the toes, and above all by the mobility of the thumb, which can be carried across the palm, and placed in apposition with each of the fingers.

It is not difficult to tell which hand is presenting. If the hand be in the vagina, or beyond the vulva, and within easy reach, we recognize which it is by laying hold of it as if we were about to shake hands. If the palm lie in the palm of the practitioner's hand, with the two thumbs in apposition, it is the right hand; if the back of the hand, it is the left. Another simple way is for the practitioner to imagine his own hand placed in precisely the same position as that of the fetus; and this will readily enable him to verify the previous diagnosis. A simple rule tells us how the body of the child is placed, for, provided we are sure the hand is in a state of supination, the back of the hand points to the back of the child, the palm to its abdomen, the thumb to the head, and the little finger to the feet.

Mechanism.—It is perhaps hardly proper to talk of a mechanism of shoulder presentations, since, if left unassisted, they almost invariably lead to the gravest consequences. Still, Nature is not entirely at fault even here, and it is well to study the means she adopts to terminate these malpositions.

Terminations of Shoulder Presentation.—There are two possible terminations of shoulder presentation. In one, known as *spontaneous version*, some other part of the fetus is substituted for that originally presenting; in the other, *spontaneous evolution*, the fetus is expelled by being squeezed through the pelvis, without the originally presenting part being withdrawn. It cannot be too strongly impressed on the mind that neither of these can be relied on in practice.

Spontaneous version may occasionally occur before, or immediately after, the rupture of the membranes, when the fœtus is still readily movable within the cavity of the uterus. A few authenticated cases are recorded in which the same fortunate issue took place after the shoulder had been engaged in the pelvic brim for a considerable time, or even after prolapse of the arm; but its probability is necessarily much lessened under such circumstances. Either the head or the breech may be brought down to the os in place of the original presentation.

The precise mechanism of spontaneous version, or the favoring circumstances, are not sufficiently understood to justify any positive statement with regard to it.

Cazeaux believed that it is produced by partial or irregular contraction of the uterus, one side contracting energetically, while the other remains inert, or only contracts to a slight degree. To illustrate how this may effect spontaneous version, let us suppose that the child is lying with the head in the left iliac fossa. Then if the left side of the uterus should contract more forcibly than the right, it would clearly tend to push the head and shoulder to the right side, until the head came to present instead of the shoulder. A very interesting case is related by Geneuil,¹ in which he was present during spontaneous version, in the course of which the breech was substituted for the left shoulder more than four hours after the rupture of the membranes. In this case the uterus was so tightly contracted that version was impossible. He observed the side of the uterus opposite the head contracting energetically, the other remaining flaccid, and eventually the case ended without assistance, the breech presenting. The natural moulding action of the uterus, and the greater tendency of the long axis of the child to lie in that of the uterus, no doubt assist the transformation, and much must depend on the mobility of the fœtus in any individual case.

That such changes often take place in the latter weeks of pregnancy, and before labor has actually commenced, is quite certain, and they are probably much more frequent than is generally supposed. When spontaneous version does occur, it is, of course, a most favorable event; and the termination and prognosis of the labor are then the same as if the head or breech had originally presented.

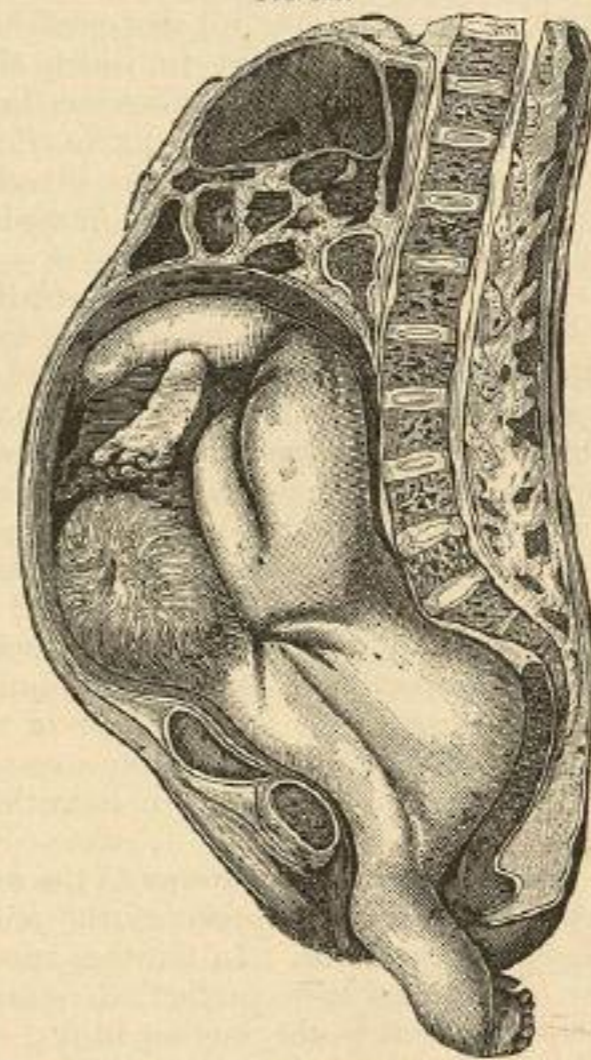
Spontaneous Evolution.—The mechanism of spontaneous evolution, since it was first clearly worked out by Douglas, has been so often and carefully described that we know precisely how it occurs. Although every now and then a case is recorded in which a living child has been born by this means, such an event is of extreme rarity; and there is no doubt of the accuracy of the general opinion, that spontaneous evolution can only happen when the pelvis is unusually roomy and the child small; and that it almost necessarily involves the death of the fœtus, on account of the immense pressure to which it is subjected.

Two varieties are described, in one of which the head is first born,

¹ Annal. de Gynéc., 1876, tom. v. p. 468.

in the other the breech; in both the originally presenting arm remained prolapsed. The former is of extreme rarity, and is believed only to have happened with very premature children, whose bodies were small and flexible, and when traction had been made on the presenting arm. Under such circumstances it can hardly be called a natural process, and we may confine our attention to the latter and more common variety.

FIG. 123.



Spontaneous evolution. (After CHIARA.) This drawing was made from a patient who died undelivered, the body being frozen and bisected.

What takes place is as follows: The presenting arm and shoulder are tightly jammed down, as far as is possible, by the uterine contractions, and the head becomes strongly flexed on the shoulder. As much of the body of the fetus as the pelvis will contain becomes engaged, and then a movement of rotation occurs, which brings the body of the child nearly into the antero-posterior diameter of the pelvis (Fig. 123). The shoulder projects under the arch of the pubis, the head lying above the symphysis, and the breech near the sacro-iliac synchondrosis. It is essential that the head should lie forward above the pubes, so that the length of the neck may permit the shoulder to project under the pubic arch, without any part of the head entering the pelvic cavity. The shoulder and neck of the child now become fixed points, around

which the body of the child rotates, and the whole force of the uterine contractions is expended on the breech. The latter, with the body, therefore, becomes more and more depressed, until, at last, the side of the thorax reaches the vulva, and, followed by the breech and inferior extremities, is slowly pushed out. As soon as the limbs are born the head is easily expelled.

The enormous pressure to which the body is subjected in this process can readily be understood. As regards the practical bearings of this termination of shoulder presentations, all that need be said is, that, if we should happen to meet with a case in which the shoulder and thorax were so strongly depressed that turning was impossible, and in which it seemed that Nature was endeavoring to effect evolution, we should be justified in aiding the descent of the breech by traction on the groin, before resorting to the difficult and hazardous operation of embryotomy and decapitation.

Treatment.—It is unnecessary to describe specially the treatment of shoulder presentation, since it consists essentially in performing the operation of turning, which is fully described elsewhere. It is only needful here to insist on the advisability of performing the operation in the way which involves the least interference with the uterus. Hence, if the nature of the case be detected before the membranes are ruptured, an endeavor should be made—and ought generally to succeed—to turn by external manipulation only. If we can succeed in bringing the breech or head over the os in this way, the case will be little more troublesome than an ordinary presentation of these parts. Failing in this, turning by combined external and internal manipulation should be attempted; and the introduction of the entire hand should be reserved for those more troublesome cases in which the waters have long drained away, and in which both these methods are inapplicable.

Should all these means fail, we must resort to the mutilation of the child by embryulcia or decapitation, probably the most difficult and dangerous of all obstetric operations. In fourteen cases in the United States the Cesarean section has been performed under these circumstances, with a successful result to the mother in ten. In seven cases the arm protruded, in three the pelvis was small, and in two it was deformed. Three of the women were subsequently delivered naturally.¹ [The four deaths were produced as follows: Case 3 was in labor ninety-six hours, three days under a midwife, and died of exhaustion in seventeen hours. Case 7 was twenty-six hours in labor, and had been under the care of a midwife, who had given ergot freely; she was much prostrated, and died in twelve hours. Case 9 would in all probability have recovered had she not risen from her bed on the third day to defend her mother against her husband, who came home drunk. The fright, excitement, and exertion caused her death in a few hours. Case 13 was three days in labor, and ergot was largely used; forceps, version, and craniotomy were all tried. Death came on the tenth day from the bursting of an abscess of the abdominal wall into the peri-

¹ Harris, note to 6th American edition.

toneal cavity, resulting in septic peritonitis. Case 11 was operated upon in June, 1880; was up and at work in a month; became pregnant in two and a half more, and bore a child naturally in twelve and a half months after the operation. The uterine wound was closed with two silver-wire sutures.

This operation certainly promises well in cases of impaction with an arm protruding where there has been no deforming pelvic disease. With the new conservative method such cases should be saved in large proportion in the United States. Will embryulcia or decapitation be likely to succeed as well in this country?—ED.]

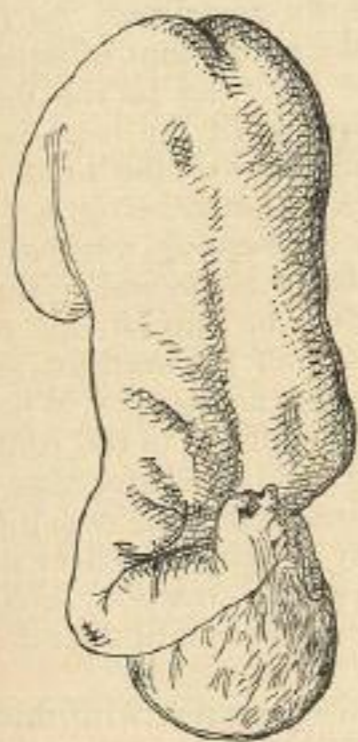
Complex Presentations.—There are various so-called *complex presentations* in which more than one part of the fetal body presents. Thus we may have a hand or a foot presenting with the head, or a foot and hand presenting simultaneously. The former do not necessarily give rise to any serious difficulty, for there is generally sufficient room for the head to pass. Indeed, it is unlikely that either the hand or foot should enter the pelvic brim with the head, unless the head was unusually small, or the pelvis more than ordinarily capacious. As regards treatment, it is, no doubt, advisable to make an attempt to replace the hand or foot by pushing it gently above the head in the intervals between the pains, and to maintain it there until the head be fully engaged in the pelvic cavity. The engagement of the head can be hastened by abdominal pressure, which will prove of great value. Failing this, all we can do is to place the presenting member at the part of the pelvis where it will least impede the labor, and be the least subjected to pressure; and that will generally be opposite the temple of the child. As it must obstruct the passage of the head to a certain extent, the application of the forceps may be necessary. When the feet and hands present at the same time, in addition to the confusing nature of the presentation from so many parts being felt together, there is the risk of the hands coming down, and converting the case into one of arm presentation. It is the obvious duty of the accoucheur to prevent this by insuring the descent of the feet, and traction should be made on them, either with the fingers or with a fillet, until their descent, and the ascent of the hands, are assured.

Dorsal Displacement of the Arm.—In connection with this subject may be mentioned the curious dorsal displacement of the arm first described by Sir James Simpson,¹ in which the forearm of the child becomes thrown across and behind the neck. The result is the formation of a ridge or bar, which prevents the descent of the head into the pelvis by hitching against the brim (Fig. 124). The difficulty of diagnosis is very great, for the cause of obstruction is too high up to be felt. But if we meet with a case in which the pelvis is roomy and the pains strong, and yet the head does not descend after an adequate time, a full exploration of the cause is essential. For this purpose we would naturally put the patient under chloroform, and pass the hand sufficiently high. We might then feel the arm in its abnormal position. That was what took place in a case under my own care, in

¹ Selected Obstet. Works, vol. 1.

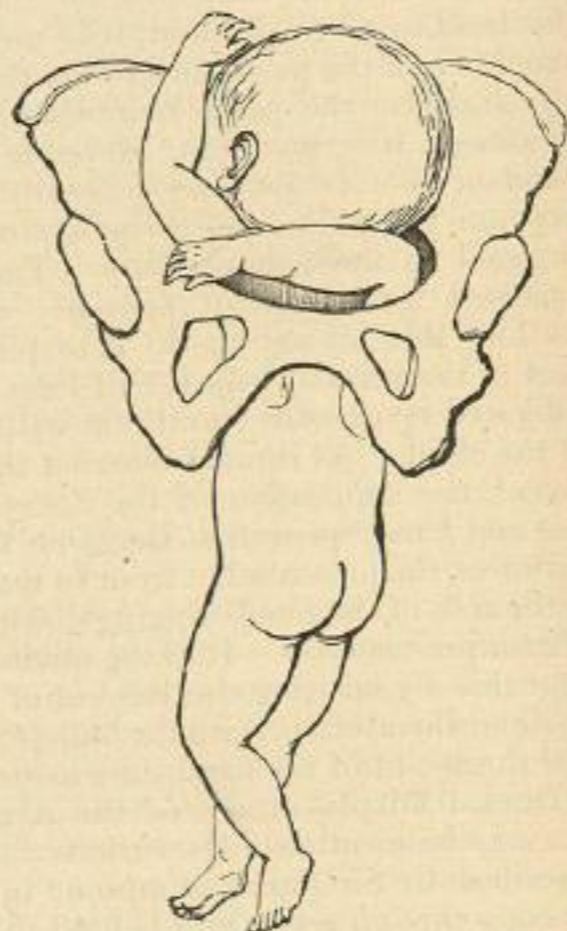
which I failed to get the head through the brim with the forceps, and eventually delivered by turning. The same course was adopted by my friend Mr. Jardine Murray in a similar case.¹ Simpson advises that the arm should be brought down so as to convert the case into an ordinary hand and head presentation. This, if the arm be above the brim, must always be difficult, and I believe the simpler and more effective plan is podalic version. A similar displacement may cause some difficulty in breech presentations, and after turning (Fig. 125). Delay here is easier of diagnosis, since the obstacle to the expulsion will at once lead to careful examination. By carrying the body of the child well backward, so as to enable the finger to pass behind the symphysis pubis and over the shoulder, it will generally be easy to liberate the arm.

FIG. 124.



Dorsal displacement of the arm.

FIG. 125.



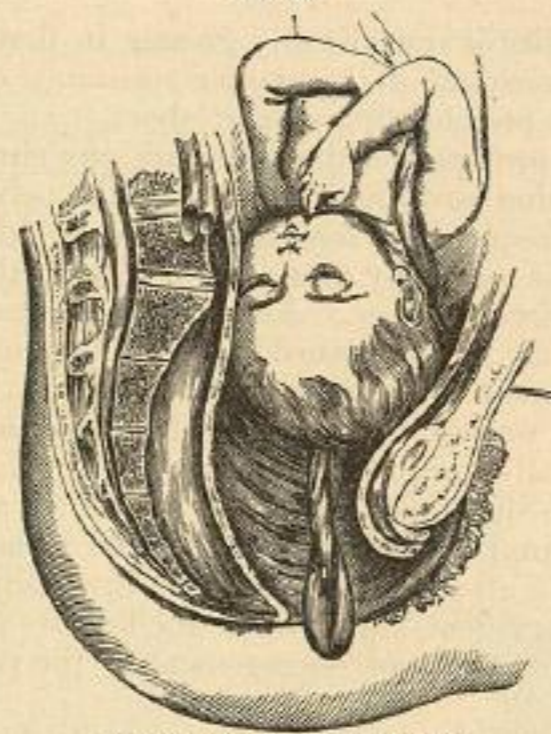
Dorsal displacement of the arm in footling presentations. (After BARNES.)

Prolapse of the Umbilical Cord.—It occasionally happens that the umbilical cord falls down past the presenting part (Fig. 126), and is apt to be pressed between it and the walls of the pelvis. The consequence is that the foetal circulation is seriously interfered with, and the death of the child from asphyxia is a common result. Hence prolapse of the funis is a very serious complication of labor in so far as the child is concerned.

¹ Med. Times and Gaz., 1861

Frequency.—Fortunately it is not a very frequent occurrence. Churchill calculates that out of over 105,000 deliveries it was met with once in 240 cases, and Scanzoni once in 254. Its frequency varies much under different circumstances, and in different places. We find from Churchill's figures a remarkable difference in the proportional number of cases observed in France, England, and Germany—viz., 1 in 446½, 1 in 207½, and 1 in 156, respectively. Great as is the proportion referred to Germany in these figures, it has been found to be exceeded in special districts. Thus Engelmann records 1 case out of 94 labors in the Lying-in Hospital at Berlin, and Michaelis 1 in 90 in that of Kiel. These remarkable differences are at first sight not easy to account for. Dr. Simpson suggests, with considerable show of probability, that the difference in frequency in England, France, and

FIG. 126.



Prolapse of the umbilical cord.

Germany may depend on the varying positions in which lying-in women are placed during labor in each country. In France, where, although the patient is laid on her back, the pelvis is kept elevated, the complication occurs least frequently; in England, where she lies on her side, more often; and in Germany, where she is placed on her back with her shoulders raised, most often. The special frequency of prolapsed funis in certain districts, as in Kiel, is supposed by Engelmann¹ to depend on the prevalence of rickets, and consequently of deformed pelvis, which we shall presently see is probably one of the most frequent and important causes of the accident.

Prognosis.—With regard to the danger attending prolapsed funis, as far as the mother is concerned, it may be said to be altogether unimportant; but the universal experience of obstetricians points to the

¹ Amer. Journ. of Obstet., 1873-74, vol. vi. pp. 409, 540.

great risk to which the child is subjected. Scanzoni calculates that 45 per cent. only of the children were saved; Churchill estimated the number at 47 per cent.; thus, under the most favorable circumstances, this complication leads to the death of more than half the children. Engelmann found that out of 202 vertex presentations only 36 per cent. of the children survived. The mortality was not nearly so great in other presentations; 68 per cent. of the cases in which the child presented with the feet were saved, and 50 per cent. in original shoulder presentations. The reason of this remarkable difference is, doubtless, that in vertex presentations the head fits the pelvis much more completely, and subjects the cord to much greater pressure; while in other presentations the pelvis is less completely filled, and the interference with the circulation in the cord is not so great. Besides, in the latter case the complication is detected early, and the necessary treatment sooner adopted.

The fetal mortality is considerably greater in first labors—a result to be expected on account of the greater resistance of the soft parts, and the consequent prolongation of the labor.

The causes of prolapse of the funis are any circumstances which prevent the presenting part accurately fitting the pelvic brim. Hence it is much more frequent in face, breech, or shoulder than in vertex presentations, and is relatively more common in footling and shoulder presentations than in any other. Amongst occasional accidental predisposing causes may be mentioned early rupture of the membranes, especially if the amount of liquor amnii be excessive, as the sudden escape of the fluid washes down the cord; undue length of the cord itself; or an unusually low placental attachment. Engelmann attaches great importance to slight contraction of the pelvis, and states that in the Berlin Lying-in Hospital, where accurate measurements of the pelvis were taken in all cases, it was almost invariably found to exist. The explanation is evident, since one of the first results of pelvic contraction is to prevent the ready engagement of the presenting part in the pelvic brim.

The diagnosis of cord presentation is generally devoid of difficulty; but if the membranes are still unruptured, it may not always be quite easy to determine the precise nature of the soft structures felt through them, as they recede from the touch. If the pulsations of the cord can be felt through the membranes, all difficulty is removed. After the membranes are ruptured, there is nothing for which it can well be mistaken.

The important point to determine in such a case is whether the cord be pulsating or not; for if pulsations have entirely ceased, the inference is that the child is dead, and the case may then be left to Nature without further interference. It is of importance, however, to be careful; for, if the examination be made during a pain, the circulation might be only temporarily arrested. The examination, therefore, should be made during an interval, and a loop of the cord pulled down, if necessary, to make ourselves absolutely certain on this point.

The amount of the prolapse varies much. Sometimes only a knuckle of the cord, so small as to escape observation, is engaged between the

pelvis and presenting part. Under such circumstances the child may be sacrificed without any suspicion of danger having arisen. More often the amount prolapsed is considerable; sometimes so as to lie in the vagina in a long loop, or even to protrude altogether beyond the vulva.

Treatment.—In the treatment the great indication is to prevent the cord from being unduly pressed on, and all our endeavors must have this object in view. If the presentation be detected before the full dilatation of the cervix, and when the membranes are unruptured, we must try to keep the cord out of the way; to preserve the membranes intact as long as possible, since the cord is tolerably protected as long as it is surrounded by the liquor amnii; and to secure the complete dilatation of the os, so that the presenting part may engage rapidly and completely.

Much may be done at this time by the postural treatment, which we owe chiefly to the ingenuity of Dr. T. Gaillard Thomas, of New York, whose writings familiarized the profession with it, although it appears that a somewhat similar plan had been occasionally adopted previously. Dr. Thomas's method is based on the principle of causing the cord to slip back into the uterine cavity by its own weight. For this purpose the patient is placed on her hands and knees, with the hips elevated, and the shoulders resting on a lower level (Fig. 127). The cervix is then no longer the most dependent portion of the

FIG. 127.



Postural treatment of prolapse of the cord.

uterus, and the anterior wall of the uterus forms an inclined plane down which the cord slips. The success of this manœuvre is sometimes very great, but by no means always so. It is most likely to succeed when the membranes are unruptured. If, when adopted, the cord slip away, and the os be sufficiently dilated, the membranes may be ruptured, and engagement of the head produced by properly applied uterine pressure. Sometimes the position is so irksome that it is impossible to resort to it. Postural treatment is not even then altogether impossible, for by placing the patient on the side opposite

to that of the prolapse, so as to relieve the cord as much as possible from pressure, and at the same time elevating the hips by a pillow, it may slip back. Even after the membranes are ruptured, postural treatment in one form or another may succeed; and, as it is simple and harmless, it should certainly be always tried. Attempts at reposition, by one or other method described below, may also occasionally be facilitated by trying them when the patient is placed in the knee-shoulder position.

Failing by postural treatment, or in combination with it, it is quite legitimate to make an attempt to place the cord beyond the reach of dangerous pressure by other methods. Unfortunately reposition is too often disappointing, difficult to effect, and very frequently, even when apparently successful, shortly followed by a fresh descent of the cord. Provided the os be fully dilated and the presenting head engaged in the pelvis (for reposition may be said to be hopeless when any other part presents), perhaps the best way is to attempt it by the hand alone. Probably the simplest and most effectual method is that recommended by McClintock and Hardy, who advise that the patient should lie on the opposite side to the prolapsed cord, which should then be drawn toward the pubes as being the shallowest part of the

pelvis. Two or three fingers may then be used to push the cord past the head, and as high as they can reach. They must be kept in the pelvis until a pain comes on, and then very gently withdrawn, in the hope that the cord may not again prolapse. During the pain external pressure may very properly be applied to favor descent of the head. This manœuvre may be repeated during several successive pains, and may eventually succeed. The attempt to hook the cord over the fetal limbs, or to place it in the hollow of the neck, recommended in many works, involves so deep an introduction of the hand that it is obviously impracticable.

Various complex instruments have been invented to aid reposition (Fig. 128), but even if we possessed them they are not likely to be at hand when the emergency arises. A simple instrument may be improvised out of an ordinary male elastic catheter, by passing the two ends of a piece of string through it, so as to leave a loop emerging from the eye of the catheter. This is passed through the loop of prolapsed cord, and then fixed in the eye of the catheter by means of the stilette. The cord is then pushed up into the uterine cavity by the catheter, and liberated by withdrawing the stilette. Another simple instrument may be made by cutting a hole in a piece of whalebone. A piece of tape is then passed through the loop of the cord and the ends threaded through the eye cut in the whalebone. By tightening the tape the whalebone is held in close



Braun's apparatus for replacing the cord.

the loop of the cord and the ends threaded through the eye cut in the whalebone. By tightening the tape the whalebone is held in close

apposition to the cord, and the whole is passed as high as possible into the uterine cavity. The tape can easily be liberated by pulling one end. If preferred, the cord can be tied to the whalebone, which is left *in utero* until the child is born. Nothing need be said as to the various other methods adopted for keeping up the cord, such as the insertion of pieces of sponge, or tying the cord in a bag of soft leather, since they are generally admitted to be quite useless.

It only too often happens that all endeavors at reposition fail. The subsequent treatment must then be guided by the circumstances of the case. If the pelvis be roomy, and the pains strong, especially in a multipara, we may often deem it advisable to leave the case to Nature, in the hope that the head may be pushed through before pressure on the cord has had time to prove fatal to the child. Under such circumstances the patient should be urged to bear down, and the descent of the head be promoted by uterine pressure, so as to get the second stage completed as soon as possible. If the head be within easy reach, the application of the forceps is quite justifiable, since delay must necessarily involve the death of the child. During this time the cord should be placed, if possible, opposite one or the other sacro-iliac synchondrosis according to the position of the head, as being the part of the pelvis where there is most room, and pressure would consequently be least prejudicial. If we have to do with a case in which the head has not descended into the pelvis, and postural treatment and reposition have both failed, provided the os be fully dilated, and other circumstances be favorable, turning would undoubtedly offer the best chance to the child. This treatment is strongly advocated by Engelmann, who found that 70 per cent. of the children delivered in this way were saved. There can be no question that, so far as the interests of the child are concerned, it is, under the circumstances indicated, by far the best expedient. Turning, however, is by no means always devoid of a certain risk to the mother, and the performance of the operation, in any particular case, must be left to the judgment of the practitioner. A fully dilated os, with membranes unruptured, so that version could be performed by the combined method without the introduction of the hand into the uterus, would be unquestionably the most favorable state. If it be not deemed proper to resort to it, all that can be done is to endeavor to save the cord from pressure as much as possible, by one or another of the methods already mentioned.

CHAPTER IX.

PROLONGED AND PRECIPITATE LABORS.

AMONG the difficulties connected with parturition there are none of more frequent occurrence, and none requiring more thorough knowledge of the physiology and pathology of labor, than those arising from