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BREECH PRESENTATION

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This malpresentation, which occurs in approximately 3% of cases at term, is associated with a high foetal mortality, a raised maternal mortality and morbidity, and a greater incidence of maternal trauma. Gibberd says of it that 'the gross foetal mortality in hospital practice is seldom below 30% and often above this figure'. For these reasons breech presentation should never be regarded lightly.

There are a number of conditions which are known to occur in association with breech presentation and which may be aetiologically related to the occurrence of this malpresentation. These may be grouped under several headings, as follows:

1. Conditions interfering with the proper adaptation of the foetal head to the lower uterine segment or of the breech to the fundus. This group includes placenta praevia, contracted pelvis, hydrocephalus, tumours of the uterus or pelvic structures, cornual attachment of the placenta, and congenital abnormalities of the uterus such as subseptate uterus.

2. Conditions providing excessive room in which the foetus can move. Here are included hydramnios, multiparity with slack uterus, multiple pregnancy (frequently associated with hydramnios), and prematurity (relatively larger amount of liquor).

3. Conditions providing too little space for free movement of the the foetus, such as oligohydramnios and extended legs.

It must be mentioned that in a large proportion of cases no apparent 'cause' can be detected.

Depending on the attitude of the legs several varieties of breech presentation are described, as follows:

(*a*) Complete, where both hip and knee joints are flexed, and

(*b*) Incomplete, when one or other or both these joints are extended. There are thus three sub-groups of incomplete breech presentation:

(i) Extended or frank breech, where the hips are flexed and the knees extended,

(ii) Knee presentation, where the hips are extended and the knees flexed,

(iii) Footling presentation, where both hips and knee joints are extended.

Diagnosis is of vital importance for, as I shall indicate later, early diagnosis will improve the results. Suspicion should be aroused by the presence of epigastric discomfort or tenderness, the sensation of a lump in the upper abdomen, the sudden onset of nausea or heartburn, or the feeling of excessive movements over the bladder or in the vagina. Palpation will as a rule provide the answer by feeling the head in the fundus and the breech in the lower pole of the uterus. The position of the foetal heart, though not of great diagnostic value, may help to confirm these findings. Where difficulty arises from obesity, resistance or an irritable uterus, or because the head is situated deeply under the costal margin, a vaginal examination, even with closed cervix and intact membranes, may be of considerable value in arriving at a diagnosis. If, after this, there still remains any doubt, resort should be made to radiological examination.

MANAGEMENT

Once the malpresentation is recognized the problem of its management then arises. In the first instance it is necessary to decide whether breech presentation adds materially to the risks. To assess this adequately it is necessary to compare the gross foetal mortality rates of breech and vertex deliveries. Gibberd's figure of a 30% and higher foetal mortality with breech delivery should convince the most sceptical. I am certain that the practice of correcting results by excluding complications is wrong. Thus to exclude prematurity when assessing the foetal risk of breech presentation is misleading because I am sure that in many of these cases it is the breech presentation *per se* that is responsible for the premature rupture of membranes and the onset of premature labour—I hope at some future date to prove this statement. Further, the tendency to exclude the cases delivered by Caesarean section when considering the foetal risk of breech delivery completely omits the risks to the mother, immediate and late, of Caesarean section, as well as the likely diminution in the size of the family following Caesarean section.

The answer to the problem is to prevent breech presentation by prophylactic external cephalic version. In spite of the dangers attributed to this procedure the risks to the foetus of a breech delivery are far greater. Before considering the technique I must first stress the contra-indications. Thus, version should not be performed in the following conditions: Where delivery by Caesarean section is already indicated for some other condition; in the presence of toxaemia or hypertension (because of the added risk of traumatic accidental haemorrhage); in cases of hydrocephalus (which are more readily dealt with when the breech presents); in cases of antepartum haemorrhage; and in multiple pregnancy. Previous Caesarean section constitutes a relative contra-indication.

External Cephalic Version

In the absence of any of these complications external cephalic version should always be attempted. The first decision that has to be made is, when should version be first attempted? Here, as elsewhere, it is unwise to generalize. Each case needs to be judged on its own merits. In patients with a relaxed thin abdominal wall, a slack uterus, and a fair

amount of liquor, version can well be delayed till the 34th week, or on occasion even later. On the other hand, where it is anticipated that version is likely to prove difficult, as when the amount of liquor is minimal or the legs are extended, version should be performed very much sooner if success is to be achieved. I have in such cases performed the operation as early as the 24th week. To judge which cases fall into this latter category is not difficult and such judgment is readily gained by experience.

Having then decided when to do the version, the direction of turning the infant must next be considered. In the majority of cases the direction of turning is unimportant, provided that if version fails in one direction, an attempt is made to turn the foetus in the opposite direction. However, there is one type of case in which I feel the direction of turning is important, viz. the breech with extended legs. Here the foetus should be turned so that it does a backward somersault. Not only is the version more likely to succeed but by turning it in this direction the legs are more likely to flex, particularly if the abdominal hand can be insinuated between the sinciput and the feet. This is provided that the legs cannot be first flexed by abdominal manipulation, as on occasion they can be.

The essential requirements for successful version are relaxation on the part of the patient, and gentleness and patience on the part of the operator. The latter are particularly important and will result in a higher incidence of success. In the majority of patients a preliminary explanation is advisable, but on rare occasions it is best avoided. The patient should be lying flat on her back in a position of comfort. I have not found the Trendelenberg position particularly valuable, even in the difficult cases. Bending the knees may occasionally be of some assistance in improving the abdominal relaxation.

After the position of the foetus has been determined and the foetal heart listened to, the breech should first be 'disengaged', then displaced towards one or other iliac fossa, and held there with one hand, while with the other hand the head is gently pushed round towards the pelvis. Continued pressure (continuous or intermittent as the case demands) with both hands will generally succeed in converting the presentation to a vertex. While this procedure will succeed in the majority of cases it is necessary on occasion to vary the technique slightly. Thus, frequently it is only necessary to apply pressure on one pole and, as the foetus moves away from the operator's hand, the hand is advanced so that the foetus virtually turns on its own in its attempt to evade the pressure. Occasionally, too, difficulty is caused by the head impinging on the iliac crest, when success may be achieved by pushing the head downwards and forward by additional pressure from the loin. I repeat, too, that in some cases extended legs can be flexed by external manipulation before version is performed. On rare occasions it may be necessary to elevate the breech from the pelvis by vaginal manipulation.

After successful version it is generally advised that the head should be pushed into the brim, though I personally doubt the value of this additional procedure. Certainly the foetal heart should be checked and the vulva inspected for bleeding after each attempt at version. The foetal heart usually slows after the procedure but rapidly returns to normal. Should it fail to do so it might be wise to reconvert the presentation to a breech. I have not yet had to do so, for the necessity for this very rarely arises. The bleeding that occasionally follows version is caused by placental separation, but it is usually slight and generally subsides quickly with bed rest. Provided version is avoided in cases of toxaemia and hypertension the risk of a severe accidental haemorrhage is very small indeed. After a successful version I do not use and would not recommend the use of any abdominal pad or binder.

Should the first attempt at version fail, repeat attempts should be made one or two weeks later, depending on the stage of pregnancy. If version has not been successfully accomplished by the 34th week, an attempt should be made under anaesthesia. Provided the necessity for gentleness is borne in mind and undue force is avoided there is no contra-indication to anaesthesia. For this particular operation I still have a preference for chloroform anaesthesia; this will produce more uterine relaxation than other anaesthetic agents, in consequence of which the version will be easier, it will be less necessary to use force, and complications will be less likely.

With the above technique, it is possible to achieve anything from 97 to 99% success and so considerably lower the incidence of breech presentation at delivery.

What of the *complications* of external cephalic version? The text-books list a number of serious and frightening complications without placing them in their proper perspective. Let me consider them each in turn:

Premature rupture of membranes, with or without premature labour. Needless to say, if this occurred before the 36th week it would constitute a serious risk; but in practice it very rarely happens and the earlier in pregnancy version is performed the less likely it is to happen.

Accidental haemorrhage from traumatic separation of the placenta. When this occurs the bleeding is as a rule slight and settles down rapidly with rest in bed without any harm resulting to the foetus. The risk of serious haemorrhage or extensive placental separation is reduced to a minimum by avoiding the operation in the presence of toxaemia or hypertension.

Presentation of the cord. Though listed as a complication of version it should very definitely be excluded because, far from causing a presentation of the cord, version will in fact reduce the incidence of presentation and prolapse of the cord by removing the cause, which is the malpresentation.

Tying a knot in the cord. Though theoretically possible it must be so difficult to do that it could well be excluded from the list of complications.

Rupturing the uterus. This is a frightening possibility but one that can readily be obviated by not using excessive force and by avoiding version when there is any doubt about the state of any uterine scar. With a healthy uterus the possibility of rupturing the uterus is virtually non-existent.

Intra-uterine foetal death by traction on a cord which is too short or shortened from being wound round the neck or trunk of the foetus. This again is a very unlikely possibility, the short cord being more likely to result in failure of version than in foetal death.

Persistence of extended legs. This may constitute a serious risk where the extended legs may cause obstruction during labour by being held up in the iliac fossa, preventing descent of the head. Fortunately this is not a common complication, but it needs to be borne in mind. In most cases the legs

flex during version, or in some cases it may be possible to flex the legs before, or on occasion after, a successful version.

The conclusions to be drawn from the above remarks are that version is a relatively simple procedure, that the complications are rarely seen, and that the earlier in pregnancy the version is performed the easier the version, the less the force that needs to be applied, and consequently the fewer the complications. There are two objections that are constantly raised to early version and these need to be dealt with. It is said that if left alone some of these cases will turn spontaneously. While this is perfectly true, no harm will result from doing what nature would have done anyhow, and by doing early version one will succeed in turning those cases where nature would have failed and where if delayed to much later in pregnancy the doctor will also fail—the result being a 30% or higher gross foetal mortality! The second objection to early version is that the foetus might revert to a breech, necessitating repeat version. Personally I am never disturbed by this. My attitude to this possibility is that, should the foetus find it easy to move round to a breech, cephalic version will also be easy and the possibility of any complication resulting from repeat version is therefore negligible. At least those cases which provide difficulty in version will be less likely to revert to a breech and they will thus have been successfully turned, whereas if left to a later stage of pregnancy the difficulties will be greater or even insuperable. Further, the common causes of failure in performing version, such as scanty liquor, sacro-posterior position, extended legs and a head that is situated deeply under the costal margin, are all usually avoided or overcome by early version.

Though I have stressed the advisability of early version, I must add that no matter how late in pregnancy a breech presentation is discovered external version should still be attempted and if necessary under general anaesthesia. It may sometimes be a reasonable procedure even during labour before the membranes have ruptured.

The Unconverted Breech Presentation

It is necessary now to consider the management of those cases of breech presentation where prophylactic treatment has failed, of the few cases where the diagnosis has not previously been made, and of the cases of breech presentation seen as emergencies in labour. The choice of treatment here lies between Caesarean section and vaginal delivery. Caesarean section is best employed where some complicating factor exists. Thus it would be indicated in the elderly primigravida, in patients with pelvic contraction, and in cases where the foetus is clinically considered to be large. Vaginal delivery on the other hand would be confined to those cases presenting no such additional complications. Premature induction of labour in breech presentation is best avoided, for the risk of intracranial damage is so much greater for the premature than the mature foetus.

Let us now consider the management of normal labour in the uncomplicated complete breech. During the first stage of labour the management is the same as for a vertex presentation. However, as with any other malpresentation, there is a greater risk of premature rupture of the membranes and of prolapse of the umbilical cord. This complication must constantly be looked for and, should it occur, dealt with on its own merits. As soon as the perineum commences to bulge the patient should be placed in the lithotomy position with her buttocks at the edge of the bed. When the perineum is distended an episiotomy should be performed. This should be a liberal one and should be done under local anaesthesia (local infiltration or pudendal block). It should be done in all primigravidae and in those multiparae where it is apparent that the perineum will offer an unnecessary additional risk to the foetus.

With continued expulsive efforts on the part of the mother, further descent of the foetus occurs and the legs may, without traction, be lifted out of the vagina. When the umbilicus appears a loop of cord is pulled down to avoid traction on the umbilical insertion of the cord. With further descent the arms appear and these, too, may be lifted out of the vagina. The shoulders now escape and we are left with the aftercoming head, which may be delivered by several methods. This is the most critical stage in a breech delivery and the one which either kills or saves the foetus. Undue haste at this stage must be avoided, for fear of intracranial trauma or injury to the spinal column.

Before considering the methods of delivering the aftercoming head, it will be pertinent to review briefly the mechanism of labour in breech presentation. The movements involved in a breech delivery are engagement, descent, internal rotation (whether anterior or posterior is immaterial in breech presentation), lateral flexion of the foetal spine, and the movements of the head through the pelvis. The movements of the head through the pelvis are in turn engagement, descent, internal rotation and flexion; they are not generally appreciated in relation to the delivery of the aftercoming head, but it is particularly important to bear them in mind if it becomes necessary for the accoucheur to assist the delivery of the head throughout the pelvis.

The method which is best tried first is the Burns-Marshall method. This consists of allowing the trunk to hang from the vulva for half a minute, the object being to enable the traction supplied by the weight of the foetal trunk to pull the head through the brim and pelvis, promote flexion, and cause internal rotation. The operator stands with his side towards the patient, grasps the feet with the hand furthest from the patient and applies traction downwards towards the floor. Should the nape of the neck appear under the symphysis pubis the accoucheur may continue with the method. If the head does not descend adequately it can often be induced to do so by suprapubic pressure with the other hand whilst downward traction on the feet is continued. To continue with the delivery, slowly raise the feet through 180° *applying traction all the time*. As soon as the mouth escapes over the perineum the airway should be cleared and the delivery of the head completed. This is conveniently achieved by now grasping and applying traction on the feet with the hand nearest the patient and using the other hand to control the exit of the head from the vulva, taking the utmost care to prevent its too rapid expulsion.

Should the head not enter the brim with combined traction on the feet and suprapubic pressure on the head in the axis of the pelvic brim, then the Mauriceau-Smellie-Veit, or jaw-flexion shoulder-traction, method of delivering the aftercoming head should be employed. Although details of the method will be familiar to readers I should like to stress the necessity, during the extraction, of recalling the movements of the head through the pelvis in the normal mechanism.

Thus the head should be brought through the pelvic inlet with the sagittal suture in the transverse diameter and, after traction has brought the head to the level of the pelvic floor, the head should be rotated so that the occiput lies anteriorly. As in the Burns manœuvre, the same precautions should be employed to prevent the too rapid extrusion of the head from the vulva.

A third method of delivering the aftercoming head is by forceps. This is an extremely valuable method and should be employed as soon as any difficulty is encountered with the above methods. For this reason forceps should always be at hand whenever a breech delivery is being conducted.

Complications

It remains now to deal with some of the complications of breech delivery:

1. *Extended legs.* This does not constitute a real complication; it should be treated as one would a complete breech. When the legs are born as far as the knees, they may be lifted out of the vagina. Should this prove difficult, Pinard's manœuvre, which consists of abducting the thigh and increasing its flexion by pressure in the popliteal fossa will produce flexion of the leg, making the foot more readily accessible. The only other feature of this complication that must be borne in mind is the frequent co-existence of extended arms.

2. *Extended arms.* This may be present *ab initio* or may result from traction on the breech. Where this complication occurs the arms need to be extracted before delivery of the head can be effected. An ingenious method of so doing was described by Lovset in 1937. Sufficient traction is employed to bring the posterior shoulder below the sacral promontory. Then, during continued traction, the trunk is rotated through 180° to bring the posterior shoulder under the symphysis pubis, when the arm can easily be reached and brought down. The direction of turning is such as to bring the posterior arm across the face during the rotation. The trunk is then again rotated in the opposite direction through 180° and the other arm similarly brought down. If this manœuvre fails, the arms may be brought down by the older method of inserting the hand into the vagina and bringing down first the posterior and then the anterior arm. For the latter, rotation into the posterior position may be required.

3. *Arrested breech.* This refers to the breech arrested at the pelvic brim. The usual cause for this is disproportion and the problem is best solved by Caesarean section.

4. *Impacted breech.* Here the breech is impacted in the pelvic cavity. The cause is usually disproportion and the best treatment is probably Caesarean section. If the breech is low in the pelvic cavity, groin traction or bringing down a leg may be indicated.

5. *Posterior rotation of the occiput.* First an attempt should be made to rotate the occiput to the front. Where rotation is not possible the chin and face should be delivered from under the symphysis pubis by carrying the trunk backwards. When the forehead is fixed under the symphysis, the trunk is carried forwards to deliver the occiput over the perineum.

6. *Arrest of the head by an incompletely dilated cervix.* This dangerous complication is more likely to occur with a premature breech delivery. It is fortunately not common but carries a high foetal mortality. The only hope of saving the foetus is by incision of the cervix with extraction of the head.

SUMMARY

Although the title of this paper is breech presentation, a large part has been directed to discussing the ways and means of preventing this malpresentation. With adequate antenatal care and the employment of antenatal prophylactic version it should be possible almost completely to eliminate breech presentation.

As, however, the occasional necessity for breech delivery will always arise, the methods of coping with this malpresentation and its complications have been discussed. Particular stress must be laid on:

1. The high foetal and neonatal mortality with breech delivery.

2. The value of prophylactic external cephalic version.

3. The importance of patience, experience and forceps in the delivery of the aftercoming head.