Remarks

ON

BREECH PRESENTATION: FOETAL
MORTALITY AND INJURIES*

BY

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Before discussing the various causes of foetal death and the types of foetal injury that may result from breech labour, we must be quite clear as to the frequency with which these catastrophes occur.

I have drawn up a table illustrating the results to the foetus of breech labour in English maternity hospitals.† These figures are obtained from the latest available annual reports of the hospitals in England which publish the necessary figures. It has not been possible to work out mortality rates for primiparae and for multiparae separately, since in some of these reports this information is not given.

TABLE I.

FOETAL AND NEO-NATAL DEATH RATES IN BREECH DELIVERY IN ENGLISH MATERNITY HOSPITALS.

	Total Number of Cases.	Foetal Deaths. Per cent.	Neo-natal Deaths. Per cent.
"Uncomplicated" Breech	269	28	6
"Complicated" Breech	218	43	9

These figures are surely enough to dispel the old textbook inaccuracy that the foetal mortality associated with breech delivery is about 3 per cent. in multiparae, and about 10 per cent. in primiparae, especially when it is remembered that some of the hospitals quoted in the above table include all primiparae under the heading "complicated."

The official way of presenting breech mortality figures has the effect of hiding to a great extent the seriousness of this type of labour. We are asked to regard any breech labour in a primipara as *ipso facto* a "complicated" breech. If such a classification had not received the blessing of the Obstetric Section of the Royal Society of Medicine it would probably never have been adopted. As it is, it has done more than anything else to hide the unpleasant truth about breech mortality. This principle of suppressing the bad results by widening the meaning of the term "complicated" has been carried even further by some hospitals, where every case of extension of the limbs is placed in this accommodating class. Since nothing can be more natural than for a woman to be a primipara when she is having her first child, none of us can seriously regard primiparity as a complication. Since extension of the limbs is the rule in primiparae, and not at all uncommon in multiparae, few of us can seriously look upon this condition as a complication of breech delivery. That it may be a very serious concomitant everyone will admit, but it is so much part and parcel of the presentation that it is unreasonable to dub it a complication for statistical purposes.

For these reasons we have at Guy's Hospital always included primigravidae and cases of extension of the limbs the uncomplicated group, reserving the complicated up for cases in which some additional abnormality, such as placenta praevia or prolapsed cord, is present.

The following detailed analysis of 338 consecutive breech deliveries at Guy's Hospital is based on this method

* Made in opening a discussion in the Section of Obstetrics and Gynaecology at the Annual Meeting of the British Medical Association, Eastbourne, 1931.

† Queen Charlotte's Hospital, 1924. City of London Maternity Hospital, 1928. University College Hospital, London, 1929. Guy's Hospital, 1930. Jessop Hospital for Women, Sheffield, 1928. Liverpool Maternity Hospital, 1929. Leeds Maternity Hospital, 1930. St. Mary's Hospitals, Manchester, 1927.

of classification. Breech delivery occurring in twin labour has been kept separate because, although this can reasonably be looked upon as a complication, it is a complication that seems to be beneficial, and its significance would be lost unless these cases were classified apart.

TABLE II.

GROSS FOETAL AND NEO-NATAL DEATH RATES IN BREECH DELIVERY AT GUY'S HOSPITAL.

	Total Number of Cases.		Still-births. Per cent.		Neo-natal Deaths Per cent.	
	Primip.	Multip.	Primip.	Multip.	Primip.	Multip.
"Uncomplicated" Breech ..	48	161	28	20	2	2
"Complicated" Breech	7	43	57	56	14	2
Twins	3	76	33	9	Nil	3

N.B.—Primiparity and extension of the limbs are not considered complications in this table.

It is of course true that in the case of a macerated foetus, and in some of the complicated cases, the breech delivery may have had nothing to do with the foetal death, and it is also true that some of the neo-natal deaths may have been due to prematurity and not to any injury sustained during labour, so that in order to get an estimate of the *minimum* foetal risk associated with the labour itself we shall at least not be exaggerating if we consider only still-born, fresh foetuses in the uncomplicated group.

TABLE III.

PERCENTAGE OF STILL-BIRTHS (FOETUS FRESH) IN BREECH DELIVERY.

	Uncomplicated. Per cent.	Complicated. Per cent.	Twin. Per cent.
Primiparae.....	28	57	33
Multiparae.....	15	49	9

This table, then, gives us a true picture of the seriousness of breech labour so far as the life and death of the foetus is concerned. There is no doubt that every death in the uncomplicated group can be attributed to the essential mechanical difficulty involved in breech labour. It is interesting to note that by far the best results are obtained when labour is complicated by twins. The mechanical advantage of a small foetus, and of breech delivery after previous dilatation of the birth canal in cases where the breech happens to be the second foetus, more than compensate for the increased risk associated with twins generally.

I have chosen these figures from Guy's Hospital to illustrate the very high mortality associated with breech delivery, because the details of all cases have been available for analysis, and from a study of these it is clear that breech labour itself—setting aside all associated complications—is responsible for a foetal mortality of not less than 28 per cent. in primiparae, and 15 per cent. in multiparae.

Apart from the associated accidents, such as prolapsed cord, the intra-natal deaths are due largely to two causes.

By far the most important cause is intra-cranial haemorrhage. Since Mr. Eardley Holland has described and drawn attention to the frequency of this injury, all observers have confirmed the truth and importance of his findings. In his original communication on this subject in 1922 Mr. Holland suggested that 75 per cent. of foetal deaths were due to this cause. In my own experience of post-mortem findings at Guy's Hospital I have found practically the same proportion.

The second, and to my mind the only other important, cause of foetal death is asphyxia following cord compression after the birth of the buttocks. This accounts for almost all the remainder of the intra-natal deaths.

A third cause of death is often described—namely, death from drowning due to premature inspiration. I cannot help thinking that this will, in time, become recognized in its true light as a "bogey," and that the concomitant "hot towel" will become a thing of the past. I do not believe that the respiratory efforts made by a foetus with

its face tightly applied to the lower part of the birth canal can result in the inspiration of an important amount of liquor amnii, and even if it was able to do so, the part played by the traditional cold air in stimulating deep respiration is so negligible as compared with the effect of an accumulation of carbon dioxide in the blood, that the value of a hot towel to cover the exposed parts of the foetus must be negligible also. So far from feeling anxious when we see a partially born foetus making respiratory efforts, it would perhaps be wiser to welcome them as at least a sign of life. A hot towel in an easy breech labour is unnecessary, in a difficult case it is an impediment, and probably in no case does it prevent inspiration in a foetus sufficiently asphyxiated. Quite apart from these considerations it is doubtful if these premature inspiratory efforts are really harmful.

Apart from the danger of death, the foetus in breech cases runs an increased risk of serious injury. In the cases I have analysed serious injury occurred in 5 per cent. of living children. These injuries can best be discussed under three headings.

INJURIES TO VISCERA

Although our accurate knowledge of intra-cranial injuries is based mainly on post-mortem findings, there is no doubt that minor degrees of intra-cranial haemorrhage and of tentorial tears are not necessarily incompatible with life. At the present time it is very difficult to form an opinion as to the late effects of these injuries. Before 1922 it was vaguely assumed that Little's disease (spastic diplegia) was due to a bilateral bruising of the brain, mainly in the region of the Rolandic areas. This assumption was based upon careful observations in cases of developed diplegia, coupled with complete ignorance of what actually happened at birth when an intra-cranial injury occurred. Since Mr. Holland has described the mechanism of these injuries it is now clear that the very last parts of the brain to be affected by the stresses and strains of labour are the Rolandic areas. An intra-cranial haemorrhage that is so extensive as to involve the upper surfaces of both cerebral hemispheres is almost certain to prove fatal. Conversely, the child with the intra-cranial injury who lives is the one in whom the anatomical lesion as we know it will not suffice to explain the signs and symptoms presented by a typical Little's disease in later life.

The difficulty in studying these cases is that apart from post-mortem evidence there is no way of being certain of the diagnosis of intra-cranial injury in the new-born. If the condition is diagnosed and the child subsequently grows up normally there is always the possibility that there never was any injury of anatomical importance. In this connexion the use of lumbar puncture in new-born infants would seem to be of little assistance, since, according to American observers who have used it extensively, quite a large proportion of infants born after normal labour have blood in the cerebro-spinal fluid. Furthermore, in the interests of the child, this procedure seems to me to be unjustifiable.

At the present time we have no accurate clinical data on which to form an opinion as to the late results of minor degrees of intra-cranial injury. I know of a child delivered by Caesarean section who has developed a typical spastic diplegia. I have seen a child born after a difficult breech labour who presented a typical picture of intra-cranial injury, subsequently grow up into an apparently normal child. Now that we have knowledge of what this injury actually is, and now that our clinical methods of diagnosing it immediately after birth are improving, we may hope in the near future to follow up such cases, and obtain some useful correlation between non-fatal intra-

cranial injuries and disability in later life. At present this correlation is not obvious.

Injuries to abdominal viscera during manipulations involved in breech delivery have been very widely recognized, and although rupture of the liver and similar gross injuries may occur, their importance has probably been stressed too much. During the post-mortem examination of still-born foetuses over a period of six years at Guy's Hospital the only intra-abdominal injury met with was a case of retro-peritoneal haematoma in the region of the kidney and suprarenal. Provided reasonable care in handling the foetus is exercised, such injuries should not occur even in the most difficult breech extractions.

INJURIES TO THE UPPER LIMB

These are by far the commonest injury in difficult breech cases, and are nearly always the result of manipulations to extended arms. The injury may pass unnoticed for several days, and as early diagnosis is very important, a careful examination should always be made as a routine in all breech infants. When it is discovered that the infant has limitation in the movements of its arm the cause is nearly always either an Erb's paralysis or a fracture of the upper end of the shaft of the humerus. A physical examination will reveal which of these causes is to blame. An Erb's paralysis should be treated by putting up the arm in the "Israelite position," and allowing active movements daily when the splint is removed for bathing purposes. If this treatment is started at once the prognosis is very good indeed.

A fracture of the shaft of the humerus is best treated with a small straight Thomas arm splint, using a thin elastic band as extension. Although less elaborate methods of splinting will suffice, this method has the advantage that it allows for dressing and undressing the infant without disturbing the fragments. Union is firm within a week to ten days, after which the splint may be discarded. It may take months for the excess of callus which usually forms to be absorbed, but the ultimate results are excellent.

A fractured clavicle is often not noticed until attention is called to it by a mass of callus at the site of fracture. It calls for no special treatment beyond careful handling of the infant until union has occurred.

INJURIES TO THE LOWER LIMB

These are very much less common, fracture through the upper part of the shaft of the femur occurring only very rarely as the result of unjustifiable force being used for groin traction with extended legs. The upper fragment is flexed, externally rotated, and abducted, and as it is impossible to alter its position by any method of splinting, the best method of treatment is to bring the lower fragment into line with it. This can be done best by merely bandaging the thigh to the trunk so that the thigh is flexed, abducted, and externally rotated. A miniature "gallows" extension or any other forms of leg splint fail completely to get the two fragments into line, and although they may simplify the nursing of the infant, they should never be used. Firm union occurs within ten days, and after the excess of callus has been absorbed the ultimate results are excellent, both anatomically and functionally.

SUMMARY

In view of the fact that the foetal mortality rate in breech labour is usually under-estimated it seems a pity that a classification which tends to hide the dangers has been so widely adopted. It would seem better to regard a "complicated" breech as one in which some additional obstetric abnormality is present, and under the term "uncomplicated" to include primipara, and cases where extension of the arms occurs.

On this basis of classification the gross mortality rate for uncomplicated cases is about 30 per cent. for primiparae and about 20 per cent. for multiparae, and after making all possible allowances foetal death rates of 28 per cent. and 15 per cent. respectively can be taken as the minimum estimate of the dangers associated with the breech labour itself.

Of non-fatal accidents to the foetus, injuries to the limbs occur in about 5 per cent. of cases. Early diagnosis of the injury is all-important, since early treatment is usually rewarded by excellent recovery.

The late results of non-fatal intra-cranial injuries are at present uncertain, and sufficient reliable observations are not yet to hand to justify us in forming definite views.

ANTE-NATAL TREATMENT OF BREECH PRESENTATIONS *

BY

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Breech presentations are found very frequently in the ante-natal period up to the 34th week. After this time they are much less common, as spontaneous version to a vertex presentation occurs in a large proportion of cases at about the 34th to the 35th week of gestation. In 100,000 cases of labour Pinard observed 3,301 breech presentations—about 3.30 per cent. These statistics include premature as well as full-time labours. If full-time labours are considered only we find 1 in 62 cases. The foetal mortality in breech cases is nearly 10 per cent.; the figures given at Queen Charlotte's Hospital being 11 per cent. in primigravidae and 8 per cent. in multigravidae.

There are two main reasons for preventing breech labour as often as possible, and these are (1) the higher foetal mortality in breech labour; (2) the disadvantages to the mother: (a) the greater risk of exhaustion following a long labour, and (b) the greater liability for lacerations and damage to the pelvic floor, and therefore a greater risk of sepsis.

In every case of labour it is important to secure for the patient as easy a labour as can reasonably be achieved for her. The length of time required for convalescence after a long and trying confinement is much greater than is necessary after a relatively normal labour. This is particularly true of the return to normal as regards the patient's nervous system. It is also quite unjustifiable to run any risk of having a still-born child. For these reasons it is now the common practice to do external version in the ante-natal period for all primigravidae, except under exceptional circumstances. It is my custom to do version also for multigravidae, partly to diminish the foetal risk, and because I have learnt from patients who have experienced labour, both with a vertex and a breech presentation, that in the majority of cases the suffering in a breech is far greater than in a vertex. There is also another reason for performing version in the ante-natal period, and this is of importance. In any case the most reliable guide for ascertaining the relative size of the head and pelvis is by pushing the child's head into the pelvis. For this test it is essential that the presentation should be a vertex.

As spontaneous version so often occurs, it is unnecessary to interfere in any way until after the 34th week. The ideal time for doing version in a primigravida is about the 35th week. At this time, as a rule, the presenting part has not descended into the pelvis. It is often possible to do version easily without anaesthesia, and this is a great advantage, as it prevents the obstetrician from using undue

force. If the patient is very nervous or the abdominal muscles are very strong an anaesthetic may be necessary. A thorough dusting of the abdomen with talc powder is helpful, and the manœuvres should be done gently and with firmness. In some cases in which the presenting part has already engaged it is very helpful to raise the foot of the couch on two chairs for a few minutes before starting version. In other cases the presenting part can be pushed out of the pelvis *per vaginam* before starting. Where an anaesthetic is needed it is wise to delay version until the 37th week, in case manipulations should start labour.

I have never seen any serious complications follow version. In one case only there was a slight ante-partum haemorrhage. This cleared up quickly and the patient went to term and had a normal delivery. It was a case of breech with extended legs in a primigravida. An anaesthetic was given and a good deal of force was used to turn the child. Cases of fairly severe ante-partum haemorrhage after version under anaesthesia have been reported.

METHOD OF PERFORMING VERSION

The first essential is that, before an attempt to turn the child is made, the presenting part shall be fully pushed out of the pelvis; most failures to turn are due to the neglect of this preliminary movement. The head of the child is then seized with one hand and the breech with the other hand. The head is next pulled down towards the pelvis and the breech pushed up away from the pelvis. The direction of choice is to pull the head down towards the pelvis away from the back of the child. By this means the flexion of the child will not be disturbed. If version fails in this direction, the other direction may be tried and often succeeds without harm.

Immediately after version the head will often sink low into the pelvis; but if this does not occur an abdominal binder is applied and the patient is examined again in a week's time. The use of a binder is particularly to be recommended after version in a multigravida, where the abdominal wall is often weak, and the mal-presentation therefore liable to recur.

In a multigravida version is usually done at a later date than in a primigravida, but there is no harm in doing it at the same period of gestation. Some women complain of discomfort from the hard head in the fundus, and by doing version the patient is made much more comfortable. It is not uncommon for women to bear increasingly large children. This seems to be specially true of women whose first child was small. For this reason it is unsafe to assume that because a woman has had one child normally that all subsequent pregnancies will be normal, as is frequently done. In my opinion this is an additional reason for turning a breech presentation in a multigravida, so as to be in the position of being able to test the relative size of the head and the pelvis.

Where version has failed it is usual to wait for a few days, when the patient is seen again. In a number of cases of this kind it will be found that spontaneous version has occurred in the interval. The attempted version seems to start spontaneous version, particularly if the presenting part has been pushed out of the pelvis.

After failure to do version in a primigravida it is very instructive to have an x-ray photograph taken so as to see exactly the position of the child. It is very easy to miss a breech with extended legs by abdominal palpation alone. In order to avoid this mistake the following points are of use:

The presenting part is relatively small and more conical than one would expect.

The head in the fundus is often difficult to distinguish and its mobility is impaired, but small parts can usually be felt near it.

* Read in opening a discussion in the Section of Obstetrics and Gynaecology at the Annual Meeting of the British Medical Association, Eastbourne, 1931.