THE OCCIPITO-POSTERIOR CASE.

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The difficulties which may occur in obstetric practice, both in diagnosis and in management, when the head enters, or attempts to enter, the pelvis with the occiput posterior are only too well known to any obstetrician of experience, and much thought has been given to the diagnosis and efficient treatment of this complication. It has been called the bugbear of obstetrics, and especially if unrecognised, may be a definite cause of maternal mortality and morbidity, also of intra- and neo-natal foetal death, so that a consideration of this subject would appear not to be out of place. *The frequency of the condition* seems to vary within extremely wide limits according to different authors. Thus Tweedy found the incidence less than one per cent., while at the other end of the scale in the Philadelphia Lying-In Hospital the incidence was 29 per cent., and intermediately Williams quotes 11.3 and Piper (1933) quotes 17.1 per cent. In Cardiff Royal Infirmary, out of 2,911 consecutive cases admitted, the occiput was posterior in 333, that is 11.5 per cent., a figure almost exactly that of Williams.

The great divergence in the figures quoted by these responsible authorities may seem difficult to explain but various points have to be kept in mind. Thus it is only in comparatively recent years that intensive ante-natal examination of large numbers of pregnant women has been carried out and the results compiled. Again it is not always easy to diagnose the condition prior to the onset of labour and every obstetrician has been surprised to find an occasional case giving difficulty with this complication when ante-natal examination gave no clinical indication of its presence. Further, in many a case the occiput may enter the pelvis posteriorly but rotate with ease to the front so that labour is not impeded and the condition may not be diagnosed at all, and in certain cases, as reported by J. P. Hedley (1933), the back of the foetus may be anterior but the neck may be twisted and the occiput be posterior. It has been said that the more careful the ante-natal examination the larger will be the proportion of occiput posterior cases found, and this is largely true, while a consideration of the points enumerated above will demonstrate that the actual number of cases entering labour in this position is really impossible to determine and only those who give trouble by persistence of the condition, with the necessity for interference, can be accurately known. The condition would appear to be becoming more frequent in recent years, and the cause of this is not clear.

The ætiology of the occiput posterior has been ascribed to numerous factors. Thus it is held that the head tends frequently to engage in the transverse rather than in the oblique diameter of the pelvic brim. This view is widely accepted in France, but not so much in this country. If the back of the foetus is to the left the tendency would be for the occiput to rotate forwards into an anterior position and this may be aided by the well known tendency of the uterus to undergo a certain degree of torsion with the left border carried anteriorly. This is demonstrated by the fact that in many cases in late pregnancy the left uterine bruit is loudly audible while on the right it may be faint or even inaudible. But if the back and the occiput are to the right, for the reason stated, there would be a greater chance of the occiput rotating posteriorly especially if certain other factors

are present. From this it will appear that the right occipito-posterior position is much more frequent than the left, and the presence of the pelvic colon on the left side is a further contributing factor in this way. It is usually estimated that only about 20 per cent. of these cases are left occipito-posterior, but in one's own experience the proportion is not more than 10 per cent.

Most authors classify the condition as (a) *primary*, in which the occiput is posterior before the onset of labour, and (b) *secondary* in which it becomes so only early in labour, and as in the former case the back is also posterior there is less probability of such a case undergoing long anterior rotation.

Many factors have been mentioned in association with this position but the shape of the pelvic inlet and outlet are generally regarded as the most important. With the occiput anterior the bitemporal diameter of the skull is in the anterior relatively wide part of the pelvic brim, but when posterior it lies in the more contracted sacrocytoid diameter so that there is a probability of the posterior part of the head being held up with consequent lack of flexion. This lack of flexion is one of the gravest aspects of the case as it causes the sub-occipito frontal diameter of 4 inches to engage in the pelvis and hence produces clinical enlargement of the head so that the occipito-posterior position has to be regarded as one of the most common causes of disproportion and for this reason of prolonged labour.

Imperfect descent also gives insufficient support to the bag of membranes, and the frequency with which early rupture occurs in these cases is well known. The association of inertia is not so easy to explain, but the head being held up will fail to exert the usual pressure on the cervix and so the reflex stimulation to uterine contraction is relatively weak or may be absent.

At the pelvic outlet the main trouble is contraction of the transverse diameter which may be unsuspected. The effect of this is not to cause the occiput to be posterior, that has been determined at the brim, but to interfere with long anterior rotation, and the association between a persistent occipito posterior position and slight bi-ischial contraction of the pelvis is often noted. From what has been said it will be appreciated that, should the head be small, it will not experience the resistances mentioned so that it may progress in labour and be born in this position with comparatively little delay. Again, should the head be well flexed the impact of the posterior occiput on the resilient muscles of the pelvic floor is one of the main agents in effecting anterior rotation, so that in a multipara with weak pelvic floor muscles there would be a relatively greater tendency for this anterior rotation to fail to occur with the production of a persistent posterior position of the occiput.

In a number of papers Caldwell and Moloy (1933 and later) of New York have presented studies of structural variations in the normal pelvic architecture which they classify as (a) *gynæcoid*, or the usual female type, (b) *android* or male type, (c) *platypelloid*, or small flat pelvis, and (d) *anthropoid*, or transversely contracted pelvis. They record that the android or male type of pelvis is frequently associated with a posterior position of the occiput and with failure to rotate, while in the anthropoid type, should the occiput be posterior, it is almost certain to remain so, and this supports what has been said regarding transverse contraction of the pelvic outlet. A well recognised feature of this type of case is the tendency to insufficient flexion of the head which is responsible for so many of the difficulties encountered. The cause of this in the pelvis has been explained above but a deflexed

head is commonly encountered above the brim, and this is usually produced in a primary case of occipito-posterior position by the flexion of the foetal spine being to some extent undone by its apposition to the convexity of the maternal lumbar vertebrae.

According to Chassar Moir (1938) the cause of difficulty in labour lies not so much in the clinical enlargement of the head as in the fact that the usual angle of the foetal head to the body makes the passage of the head easy when the occiput is anterior but correspondingly difficult when it is posterior, and he compares this with the obstruction experienced if the foot should be pressed into a Wellington boot with the toes pointing backwards. In such a case the foot could not enter the boot, but if it is turned round it will slip in with ease.

The usual mechanism of birth is by a long rotation of the occiput forwards, and this may take a long time, especially if the pains are weak: in other cases it may occur rapidly so that the occipito-posterior position may not be accurately diagnosed: while again in others with strong pains and an element of disproportion, the labour may be prolonged at first with sudden termination when the occiput has become anterior. Short rotation of the occiput into the hollow of the sacrum is usually caused by lack of flexion and therefore by clinical enlargement of the foetal head and birth has to occur by an exaggerated flexion which often results in extensive laceration of the soft parts.

Diagnosis. There are certain signs that would point to the occiput being posterior, but in a proportion of such cases the birth is normal and either the diagnosis was wrong or anterior rotation had been rapid. Again in other cases there may be nothing obvious before birth to indicate that the occiput is posterior but events may indicate this to be so.

One of the most important signs is failure of the head to engage during the last few weeks of pregnancy especially if the pelvic measurements are normal, and in such a case other signs of the occiput being posterior should be searched for.

An anterior position of the limbs is also found and the limbs are easily palpable and indeed may seem multiple so as to raise the suspicion of twin pregnancy, while the back is correspondingly difficult to palpate, and in many cases cannot be identified. This is especially the case when the position is present before the onset of labour. For this reason the foetal heart is often inaudible in front but is heard at its maximum intensity in the flank corresponding to the occiput, usually on the right side, but in some cases extension of the spine may approximate the foetal chest wall to the mother's abdominal wall so that the heart may be loudly audible in front. On bimanual examination the head in such a case is high and may not be easily pressed down into the brim, but at this stage with the cervix undilated no information can be gained regarding sutures and fontanelles.

Relative flattening of the mother's abdomen below the umbilicus due to the absence of the convexity of the foetal back is often described as a characteristic sign, but in my experience it is not of any account. X-ray examination, so helpful in many obstetrical malpositions, may be of little assistance here unless the film is taken laterally: if taken in the usual antero-posterior manner it may only show the back and occiput to the right and the posterior position of the latter may not be evident.

These, or some of these, are the most common signs prior to the onset of labour. At the onset of labour or early in labour rupture of the membranes should

always make one suspect this complication. The progress of the labour is the next point that should suggest this complication, and especially slow progress with good pains and a roomy maternal pelvis: in other cases the presence of primary inertia with early rupture of the membranes is equally suggestive. When the head is well in the pelvic cavity vaginal examination may show the large anterior fontanelle presenting, and this is usually diagnostic, but, especially if cervical dilatation has been slow, after early rupture of the membranes, extensive oedema of the scalp may obscure this sign.

When the head at long last reaches the lower part of the vagina two important signs are to be elicited and one at least of these is final. By passing the flattened finger up the side of the head the direction of the pinna of the ear can easily be determined, and if this is posterior the occiput is certain to be so. This usually requires anæsthesia, and the fingers can then follow the head posteriorly, when the occiput can be identified beyond doubt, usually in the hollow of the sacrum.

When labour has been prolonged and the head at last is well down in the vagina it may properly be thought appropriate to terminate the labour by the application of low forceps: in such a case with the occiput posterior the blades may be applied easily enough but they do not lock properly owing to the greater diameter of the head grasped by the blades. In such a case the inclination forcibly to press the shanks together should be resisted, the blades should be withdrawn and digital examination will then show the pinna posterior and appropriate action can be taken.

Distension of the perineum with the formation of the D shaped anus when the head is relatively high in the pelvis is often present in these cases, but this merely indicates a large head, and with the occiput posterior the lack of flexion creates a head clinically large.

The prognosis of these cases depends almost entirely on the judgment and patience with which they are treated, and the greatest virtue is patience. Undue haste to terminate a prolonged labour is the great besetting sin, together with non-recognition of this condition as a cause of the prolongation of the labour, and this type of case forms the most common single cause of failed forceps. In cases that rotate the prognosis for mother and child should be but little influenced: it is in those that persist posterior that damage will be done to both parties and naturally the foetus will suffer most. Thus Douglas Miller (1928) reports a foetal mortality of 2.7 per cent. in cases rotating, but 22.3 per cent. in the others, and in our own series the all-in foetal mortality was 26.6 per cent. In similar cases a maternal mortality of about 2.0 per cent. may be anticipated, and the usual cause of death is puerperal sepsis subsequent to the trauma of premature interference.

But apart from mortality, puerperal morbidity, mostly septic or due to extensive laceration, occurs in about 20 per cent. of cases. In Cardiff our morbidity in this respect was 15.9 per cent.

Treatment. In no obstetrical complication is appropriate treatment going to be more rewarded and the reverse holds equally good. Patience and conservatism are called for in a high degree. The first thing is to recognise this condition as the cause of the delayed labour, and it has been shown that this may not be possible with certainty until the head is low and the ear is palpable. But it may reasonably be deduced in a case where early rupture of the membranes, inertia and slow descent with a roomy pelvis and a head not obviously enlarged are combined.

Before discussing how to interfere, the more important matter of when to interfere has to be considered, and this should be, as in most other mechanical difficulties, only when progress has ceased. So long as progress continues, even slowly, interference is contraindicated, and the only exception to this is the application of forceps to the head on the perineum after a prolonged labour. If time be given, then, it is estimated that in fully 75 per cent. of these cases the occiput will undergo long rotation and delivery occur normally, and every chance should be given for this to take place. But time and patience on the part of the patient, the attendant and the anxious relatives are necessary, and this may be one of the most difficult practical aspects of the case. Again, if progress continues and the head is finally born spontaneously face to pubes, this again is preferable to any interference, but such an event is likely only when the head is relatively small. Interference then should be necessary only when the occiput remains posterior, or in the not common cases of deep transverse arrest, and even in these cases if time be given the cervix is usually found to be fully dilated and the head low, both most desirable conditions. Many different types of manipulation have been advocated, but here it is proposed to discuss only those few in common use. But one adjunct to any manipulation must be emphasised and that is *deep anæsthesia*. If surgical anæsthesia is induced the soft parts are relaxed and any necessary manipulation can be easily and rapidly carried out, so that such anæsthesia need be only of short duration; whereas light anæsthesia, with insufficient muscular relaxation, will interfere with manipulation which will be correspondingly prolonged and difficult, and so predispose to puerperal complications. The problem, therefore, is the simplest method of rotating the foetus, and one method may be mentioned only to be condemned, that is rotation with forceps. With short straight forceps some of the disadvantages are removed, but if the usual bi-curved instruments are used the stress of the torsion of the head causes one edge of the blade to bite into the foetal head, while the opposite side of the blade, separated from the head, is likely to lacerate the vaginal walls. Kielland's forceps have been advocated for this purpose, but they have never found much favour in this country, while the condition can usually be rectified manually.

The manoeuvre usually advised is to insert the gloved and lubricated right hand into the vagina and to grasp the head; at the same time the anterior shoulder is grasped externally with the other hand, and with a combined movement of rotation both head and shoulder are rotated in the pelvis to the anterior position, when the labour can usually be terminated by forceps.

But this manipulation is not always as easy in practice as in description, and it may be difficult to find the anterior shoulder through the abdominal wall, especially if anæsthesia should not be sufficiently deep for complete relaxation.

Under these circumstances either there will be failure to rotate, or the head alone will be rotated, and when the hand is removed it will at once revert to the posterior position. When forceps are applied in ignorance of this the extraction is difficult, extensive laceration occurs, and, to the attendant's unpleasant surprise, the head is extracted with the occiput still posterior.

For these reasons I have long abandoned this method, and I employ the simplest method of rotation I know, a method that was described some years ago by Lamond Lackie (1906) of Edinburgh.

In employing this method, and with the occiput in the right posterior pelvic quadrant, the patient is first deeply anæsthetised, and, with all antiseptic precautions, the right hand is introduced flat along the right side of the foetal head, and palpation of the ear will now verify the posterior position. The flattened hand is now carried on beyond the head until the anterior shoulder is reached, and with the index finger behind this shoulder the hand is now carried anteriorly around the pelvis in a full half circle. In this way the shoulder, and with it the head, is carried round so that the occiput, which was previously right posterior, is now left anterior, where it will remain, and from where it can either deliver itself by the normal mechanism or be extracted by forceps. The head rectified by this manoeuvre has no inclination to revert to the posterior position, and this is one of the most satisfactory features of this manipulation.

It may be argued that the hand cannot be inserted past the head if the latter is impacted in the pelvis, but in such a case there should be no hesitation in pushing the head up sufficiently to allow of this, and if necessary, out of the pelvis. When the position is rectified the head will descend very rapidly to its former level.

Usually now the labour can be terminated by low forceps extraction, but in a few cases a little time will be required for the head to remould in its new position, so that if resistance is still felt when forceps are applied they should be at once taken off. In most of these cases, after a little delay, rapid spontaneous delivery will occur.

Properly performed, and with appropriate anæsthesia, the head should be turned by this manipulation in well under sixty seconds, so that anæsthesia need not be prolonged.

The main points that should guide us, therefore, in dealing with cases where the occiput is posterior are accurate ante-natal diagnosis, patience in labour with non-interference until conditions are appropriate, deep surgical anæsthesia, and a simple and certain method of rotation, and if proper attention is paid to these, the maternal and foetal interests are served to the best advantage and the complication is robbed of its terrors.

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