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THE TREATMENT OF OBSTETRIC DISPROPORTION

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Although the treatment of obstetric disproportion has occupied an important position in obstetric discussions for many years, nevertheless at the present day it still remains a subject of controversy.

If by obstetric disproportion we imply such disproportion between a particular pelvis and a particular foetus as will render labour by the natural passages impossible, then there should be no difficulty in its treatment, as all cases should require Caesarean section. The difficulty arises, not in the treatment of disproportion, but in the recognition of its presence. On the one hand, where major disproportion exists, there will be marked contraction of the pelvis, which will be easily recognized by our ordinary methods of mensuration. On the other hand, where minor disproportion exists, measurement of the pelvis alone will be useless, since the majority of cases occur in women possessing normal pelvises, and only in a small minority of cases will careful measurement show evidence of contraction of the pelvis. This latter condition also, if minor in degree, cannot be recognized easily, since measurements of the same patient taken by two observers may differ by as much as half an inch, and a single observer may record a similar difference in the measurements of the same patient when these are taken on two separate occasions.

X rays offer a very accurate means of measuring the pelvis, but this factor alone is of little value since, as already pointed out, the majority of cases of minor obstetric disproportion occur in women possessing normal pelvises. Moreover, our conception of the importance of minor contraction of the pelvis has recently undergone considerable changes. It has been emphasized that the size of the pelvis, *per se*, provided that the size is within reasonable limits of the normal, is of no great importance. Where treatment has been based upon the recognition of minor contraction of the pelvis during pregnancy, and patients have been observed carefully during labour, the results have been surprising, since many women presenting a minor degree of contraction have delivered themselves spontaneously, whereas others in whom the pelvis was of normal dimensions have failed to do so.

As it is difficult to measure accurately the pelvis within small limits, and it is almost impossible, except by x rays, to measure the foetal head, it is only by attempting to compare the foetal head directly with the pelvis that the presumption of minor disproportion can be made. Even when a decision is arrived at in this manner it is liable to error, as many other factors other than pelvic and foetal measurements are concerned in the outcome of labour.

Where the treatment has been based upon the recognition of minor disproportion in this fashion results have

not been good, as it has been pointed out that the percentage of patients treated at the present day by the induction of premature labour is greater than the percentage of patients who formerly suffered from dystocia; and also, in spite of an enormous increase in the number of patients treated by Caesarean section and by the induction of premature labour during the last twenty or thirty years, the percentage of cases of difficult labour has not diminished. Such statements suggest that a revision of our conception of the diagnosis and treatment of disproportion is necessary.

Three Groups of Patients

Following upon the bad results obtained when treatment is based solely upon the recognition of contraction of the pelvis, it has become popular with certain authorities more or less to disregard pelvic measurements; but as the recognition of gross disproportion can be made upon the findings of gross contraction of the pelvis alone it is essential that every patient should be subjected to a vaginal examination and her diagonal conjugate measured. In this way patients can be classified into the following groups:

1. Those patients in whom the conjugate vera measures $3\frac{1}{2}$ inches or more.
2. Those patients in whom the conjugate vera measures between $3\frac{1}{2}$ and $3\frac{3}{4}$ inches.
3. Those patients in whom the conjugate vera measures less than $3\frac{1}{2}$ inches.

Decisions cannot be made from a consideration of the above classification alone, but it is more or less true that patients in the first group deliver themselves by the natural passages at term, provided that the foetus is of normal size, and patients in the third group require Caesarean section. Patients in the middle group offer the greatest difficulty in forecasting the result of labour.

It is maintained in this article that from a pelvic examination alone, made in early pregnancy, the only definite decision which can be arrived at is the decision to perform Caesarean section at term, following upon the recognition of gross contraction. In addition, great reliance can be placed upon the educated hand, which will estimate on vaginal examination the general contour and the shape of the pelvis, and an impression of pelvic capacity can be gained which will be of great importance.

The Head and the Brim

Finally, in every case an attempt must be made to compare the foetal head with the pelvic brim through which it has to pass. In those cases where there is gross contraction this comparison will confirm the original decision of Caesarean section. In others, where the observer has gained an impression that the pelvis is just subnormal, he will have been on his guard to observe carefully the relative size of the head to the pelvis. If, in the latter weeks of pregnancy, the head becomes

engaged, then the case will arouse no further anxiety, as it will be passed into the group of normal patients and will be left to go into spontaneous labour at term.

On the other hand, the head may fail to engage; this is occasionally due to the foetus being small and consequently is able to occupy the abdominal cavity without the pressure of the abdominal muscles forcing it into the pelvis. Or it may be the result of the foetus being large and unable to enter the brim.

This decision can be made by comparing the head with the brim, preferably under an anaesthetic and certainly after the administration of an enema, when, if the foetus is small, the head will be forced past the brim of the pelvis, and the muscular sheet of the lower segment alone will prevent the head from being forced down on to the pelvic floor. On the other hand, examination in this fashion may show a definite difficulty at the brim, and it may be impossible to force the head into the pelvic cavity. It is this latter group of cases which requires most careful and considered treatment.

If the patient fall into this latter class and if the observer be confronted with the question "Will labour be normal or otherwise?" his opinion must be that he does not know. In such a case, if the uterine contractions are forcible; if the patient is a young woman of fortitude with pelvic joints which will allow of expansion; if the foetal head is one that will mould if necessary—then, provided the head flexes at the onset of labour and acts as an efficient plug to preserve the membranes from rupture, the prognosis would no doubt be good, but not otherwise. In other words, no opinion can be accurate until all factors concerned in the progress of labour are known; and, as these cannot be observed until after the onset of labour, I advocate that, in all cases of doubt in the primipara, the patient should be allowed to pass into spontaneous labour at term and the labour be conducted as a trial or test of labour. In this way an accurate opinion can be arrived at during the first stage of labour.

The Factors Concerned in Delivery

As the factors mentioned above have such a bearing on the outcome of labour, it is important that the observer should be able to interpret them correctly, and for this reason a more detailed description of them is given below.

The factors concerned in the delivery of a woman are:

Recognized before the onset of labour:

- (1) The size of the pelvis.
- (2) The size of the foetal head.
- (3) The general build of the patient.
- (4) The age of the patient.
- (5) The mobility of the pelvic joints.

Recognized after the onset of labour:

- (6) The presentation.
- (7) The progress of the first stage.
- (8) The force of uterine contractions.
- (9) The fortitude of the patient.
- (10) The moulding of the head.

As five of these ten factors are obtained only after the onset of labour, it follows that no correct decision concerning the outcome of labour in these cases can be made until labour is in progress and until all the factors can be weighed and given due consideration. It is for this reason that in this article I advocate that for all cases in the primipara in whom during pregnancy the physical signs suggest minor disproportion, the patient should be allowed to go into spontaneous labour at term and such a labour be looked upon as a test, the decision of the obstetrician being reserved until he has had the opportunity of observing the patient in labour and the foetal head acting under the force of uterine contractions. This is the only way by which the results which occur when decisions are made and treatment is adopted during pregnancy can be improved. The observer will be fully equipped with all data and his decision can nearly approach accuracy.

Before describing the conduct of such a trial or test of labour it will be necessary to discuss in detail all of the ten factors which, grouped together, are concerned with the outcome of labour.

1. The Size of the Pelvis

The reasons why a vaginal examination should always be made have already been stressed. Surely no correct decision can be made regarding the outcome of labour without taking into consideration all factors concerned with labour, and the most important of all these factors is the size of the pelvis, which must be carefully measured and duly considered along with all the other factors. It has been pointed out that vaginal examination will not only permit of the recognition of gross contraction of the pelvis, but that also a definite impression can be gained of the pelvic capacity. This impression is difficult to define. Certain points, however, are noted which can be described—for example, the measurement of the diagonal conjugate; the height of the promontory; the ease or difficulty with which the side walls of the pelvis can be palpated; and the estimation of the width of the pubic arch. These observations, however, are liable to error, and, in so far as the practice of obstetrics is an art and not a science, the individual impression gained by the observer is of the greatest value. After practice the obstetrician can usually say, "This is a roomy pelvis," or "This is a pelvis which may give rise to difficulty."

2. Size of Foetal Head in Relation to Size of Pelvis

Unfortunately, at present we have no accurate means of cephalometry, as, even when *x* rays are employed, it is not always possible to measure the diameters required, and we are thus faced with a situation in which a head has to pass through a pelvis, neither of which we can accurately measure. As already stated, it is only by comparing directly the foetal head with the brim that anything like an accurate impression can be gained of their relative sizes.

The outlet of the pelvis does not lend itself to comparison by trial with the size of the foetal head, and therefore measurements must never be neglected. A rough estimate of the size of the pubic arch may be obtained by palpating with the balls of the thumbs. To do this the patient is placed in the dorsal position and the buttocks brought to overhang the end of the bed. The obstetrician grasps the buttocks with both hands in such a fashion that the balls of the thumbs come to lie upon the tubera ischii, with the nails pointing in line with the ischio-pubic rami. After practice an estimate, without measurement, is easily obtained of the size of the arch. Where it is considered necessary an assistant could measure the distance between the two thumbs with the callipers, and if this measurement be less than three inches then other measurements should be taken. The antero-posterior measurement is usually taken by means of callipers between the lower border of the symphysis pubis and the tip of the sacrum. This should measure five inches.

Unfortunately, when the transverse diameter of the outlet is decreased, the antero-posterior measurement does not offer much help as to prognosis, as in such cases the space between the rami is of no use, as the foetal head cannot occupy it, but is forced backward and rides upon the ischial tuberosities. For this reason a case of transverse contraction of the outlet demands an increased distance between the tip of the sacrum and a mid-point of a line drawn between the two tuberosities of the ischium (posterior sagittal diameter). To measure this diameter is difficult, and a special pelvimeter (Thom's pelvimeter) is required. It may be said, however, that where the transverse diameter of the outlet measures three inches the posterior sagittal diameter should also measure three inches before labour should be allowed to take place spontaneously.

3. General Build of the Patient

In making a general survey of the patient certain types may be recognized almost at a glance. The rickety dwarf with square brow, pigeon chest, pendulous abdomen, and deformed limbs is well known, but fortunately rare. There are also women of small stature but with no signs of rickets. Two types of individuals fall into this group. The majority are merely women of fine and delicate mould. The fineness of their limbs and features, the

narrowness of their shoulders, and the breadth of their hips place them in a category which would be named "typically feminine." Labour in such women might be difficult in the presence of a large foetus, but an extensive observation of such women has shown how frequently their labours are not only normal but easy.

The second type consists of women of stunted growth, stout in appearance, with short neck, broad shoulders, broad hips, thick, short limbs, and often presenting a masculine hair distribution. The body is not proportionate, as these patients possibly suffer from a pituitary dystrophy. The measurement from the symphysis pubis to the top of the head is often greater than the measurement from the symphysis pubis to the heels. Such women are relatively sterile, and seldom give birth to more than one or two children in the course of a lifetime. The onset of menstruation is usually late, and after that periods are very apt to be irregular and painful. The vaginal introitus is small, and vaginal examination is difficult. It is usual to find the foetus presenting by the vertex, with the occiput posteriorly. So often is this the case that the combination of a patient of this type with a foetus in the occipito-posterior position has been named the dystocia-dystrophia syndrome. Labour in these cases is prolonged and difficult; contractions at first are strong and regular, but extremely painful. The membranes rupture early, the head is engaged, but after twelve to twenty-four hours of labour the os is usually not more dilated than will admit two fingers. Spontaneous delivery is rare, and one is frequently forced to dilate the os manually and apply the forceps. The stillbirth rate and morbidity rate are high. I am under the impression that I have seen a greater number of these cases in Jewesses than in Gentiles.

Another group may be recognized—and patients falling into this group frequently surprise the observer with the difficulty of their labours, in spite of the fact that pelvic measurements and the relation of the foetal head to the brim appear to be normal. They are women of average size, but masculine in appearance, with broad shoulders, narrow hips, thick, coarse limbs, and a tendency to masculine hair distribution on the limbs, the abdomen, and the face. In such patients the outlet of the pelvis is frequently contracted.

Notice should also be taken of kyphosis, as in patients exhibiting this deformity the outlet of the pelvis is usually markedly contracted, and, even although the head may be engaged at the brim, it may nevertheless fail to pass through the outlet. Contraction of the outlet occurs particularly in patients suffering from a lower lumbar kyphosis.

Scoliosis does not usually give rise to much contraction of the pelvis, although in such cases one side of the pelvis may be larger than the other, and the outcome of labour may be more favourable in those cases where the foetus presents in such a position that the occiput occupies the larger side of the pelvis.

4 & 5. Age and the Mobility of the Pelvic Joints

In the consideration of age it is a matter of common knowledge that a young girl can deliver herself quickly and easily in cases which, from the impression of the presence of disproportion alone, would suggest difficulty. This is due to the amount of movement permitted at the sacro-iliac joints and at the symphysis pubis. With advancing years these joints become fixed, and will neither allow of rotation nor of separation. Where movement is obtained the sacro-iliac joints and the symphysis yield to strain and permit a slight separation to take place. This is well portrayed in the rabbit, in which animal the multiparous doe presents a gap of 1/4 inch or more between the pubic bones. In addition to this, the sacro-iliac joints allow the sacrum to rock between the innominate bones in such a fashion that the promontory moves backwards and the tip of the sacrum forwards during the passage of the head through the inlet. The reverse takes place during the passage of the head through the outlet. Slight increase in the capacity of the outlet also results from backward movement of the coccyx.

Age must also be taken into consideration when dealing with the elderly primipara, as a minor degree of dispro-

portion, which in a young woman would suggest the conduct of a trial of labour, in a more elderly woman would be better treated by the performance of a Caesarean section, before the onset of labour, or, if this is not considered justifiable, obstetric old age, considered with other factors during a trial of labour, should act as a finger-post pointing towards Caesarean section.

The amount of movement these joints are likely to permit can be roughly estimated in the following manner: the patient is made to stand and the symphysis pubis is grasped between the index finger inserted into the vagina and the thumb externally. The patient is then instructed to stand first on the right leg and then on the left leg, when, if movement takes place, the two pubic bones will be felt to rock, the one on the other.

6. The Presentation

The liability of malpresentation is slightly increased in cases of disproportion, or, on the other hand, the disproportion may be due to a malpresentation—that is, the disproportion may be true or relative to an abnormal presentation or to deflexion of the head, as is so often seen when the vertex presents with the occiput posteriorly. Some of the most difficult cases of this group of patients result from an occipito-posterior position, and these should always be considered seriously. The presentation exhibited during pregnancy is not necessarily the presentation during labour. Many cases presenting by the vertex with the occiput posteriorly alter during labour to a brow or a face. This change of the presentation during labour may give rise to serious dystocia and rupture of the uterus in a case which, during pregnancy, might have suggested a normal delivery. As an extreme instance of this alteration during labour, I have seen a case which presented by the breech during the onset of labour (x-ray proof), but nevertheless the patient delivered herself several hours later with the foetus presenting by the vertex.

7. The Progress of the First Stage

In patients in whom there may be obstetric disproportion the progress of the first stage of labour may be altered from the normal. In the conduct of a trial of labour it is by observation of the progress of the first stage of labour that the final decision as to treatment is ultimately arrived at. It is therefore imperative that, in order to appreciate any abnormality of the first stage, the normal first stage be reviewed.

During the first stage of labour two anatomical changes are occurring: (1) dilatation of the os; (2) withdrawal of the cervix. The dilatation of the os is purely mechanical, and results from the fact that the membranes are driven, first, through the internal os, next through the cervical canal, and, finally, through the external os.

In normal circumstances the membranes are preserved from rupture because the head plugs the lower uterine segment and protects them from increased tension, which occurs at the height of a uterine contraction. During the first stage of normal labour the body of the foetus is not directly compressed by the contracting uterus. Contractions of the uterus increase the pressure of the liquor amnii within the amniotic sac, and the unsupported part of the membranes—namely, that part above the internal os—will therefore bulge into the cervical canal during a contraction and act as a dilating wedge upon the canal. If it were possible for the membranes to be intact but the foetus absent the membranes above the os would soon rupture, as they would be unable to withstand the pressure occurring at the height of a uterine contraction.

Contractions of the uterus are of insidious origin, as it is common knowledge that the observer can detect a contraction by abdominal palpation before the patient is herself aware of it. At the onset of a contraction the pressure of the liquor within the amniotic sac is gradually increased, and liquor passes downwards between the head of the foetus and the wall of the lower segment, so that the unsupported part of the membrane—namely, that part above the internal os—is driven into the cervical canal and acts as a dilating wedge upon it. In normal circumstances, however, the foetus moves with the liquor in the direction of the vagina, and its head is compressed

into the lower uterine segment. The amniotic cavity in this way is divided into two compartments, that behind and that in front of the head. When the head acts as an efficient plug these two compartments will not communicate during the latter part of a contraction, and the pressure in the one may differ from the pressure in the other.

Such a state of affairs could only exist where the head forms a round plug—that is, where it is well flexed and no disproportion prevents the head from descending into the lower segment or interferes with the lower segment applying itself to the head. A well-flexed vertex is round, and it is circular in outline at its girdle of contact, as its two diameters, the sub-occipito and bregmatic and the bi-parietal, are equal.

As the force of the contraction increases, the pressure in the liquor behind the head becomes greater than the pressure of the liquor in front of the head. This force pushes the head still further into the lower uterine segment and increases the efficiency of the plug. The pressure in the liquor in front of the head can only increase as the head descends, and finally with the complete dilatation of the os and the descent of the head to the vagina pressure is increased to such an extent that the membranes rupture.

With the cessation of a pain the head is slightly elevated once more into the amniotic cavity, only to be again plugged into the lower uterine segment with the onset of a new contraction. Acting in this way as a ball-valve, and moving downwards and upwards as the pains come and go, it preserves the membranes from rupture until the full dilatation of the os and the descent of the head through it.

During this stage of labour not only does dilatation of the os take place but the lower uterine segment is formed and the cervix is withdrawn. These latter result from the physiological action of the uterus—the upper uterine segment contracts and at the same time the non-contracting part below it (the lower uterine segment) becomes stretched to allow for the diminished capacity occurring in the upper uterine segment.

It will be clear that this stretching must take place, as the foetus cannot descend until the os is fully dilated. The portion of the lower segment which lies below the junction of the two segments and above the point where the head firmly compresses the lower segment against the wall of the pelvis is stretched during a contraction, particularly at the height of a contraction, and at the same time the cervix is withdrawn, because, as a rule, the pressure exerted by the head against the pelvic wall is not sufficient to prevent the withdrawal of the cervix; but in those cases where there is disproportion between the head and the cervix on the one hand, and the pelvis on the other hand, the cervix lying below the head cannot be withdrawn. In these latter cases, with the relaxation of the contractions the head ceases to compress the lower segment between itself and the pelvis, and the portion of the cervix lying below the head is withdrawn as a result of the elastic rebound of the stretched lower segment situated above the head.

In summing up the changes taking place during the first stage of labour I should like to emphasize the following:

1. Dilatation of the os takes place only during the early part of a contraction, as at the height of a contraction the head, by plugging the lower segment, cuts off the pressure of the liquor behind the head from the liquor in front of the head.
2. The lower segment above the head is stretched at the height of a contraction, and the cervix may be withdrawn.
3. The cervix below the head is withdrawn as the contraction ceases in those cases where the head was so tightly compressed against the pelvis as to render withdrawal impossible. This withdrawal can only take place provided that the lower segment is released from the pressure placed upon it by the foetal head—that is, provided that the head is able to move upwards in the interval between pains and release the lower segment from pressure. This can only take place when there is sufficient liquor remaining in the uterus to allow movement of the foetus upwards. It occurs ideally when the membranes are unruptured. After rupture of the membranes, however, such release of the lower segment from pressure can only take place for a short time, as, when the

released liquor drains away, the time ultimately arrives when, with the complete or almost complete drainage of the liquor, there remains no further room for the foetus to move upwards. After this time the head exerts continuous pressure on the lower segment, resulting in oedema of the tissues below the point of contact and failure of these tissues to withdraw above the head.

8. The Force of Uterine Contractions

A labour which is likely to be difficult may necessitate the moulding of the foetal head to permit of its passage, but moulding can only take place provided that uterine contractions are strong and regular, and for this reason due consideration must be given in all difficult labours to the force and regularity of the uterine contractions.

9. The Fortitude of the Patient

In the conduct of a difficult labour the fortitude exhibited by the patient must be taken into consideration as one of the factors which will determine whether labour is likely to end by the natural passages, since the successful conduct of these labours demands from the patient a degree of intelligent co-operation, courage, and perseverance which is not called for to such an extent in the conduct of a normal straightforward labour.

10. The Moulding of the Head

This does not take place during the first stage of labour before the rupture of the membranes. After the rupture of the membranes, however, with the onset of continuous pressure upon the foetal skull, moulding will occur provided that uterine contractions are normal. In normal circumstances, where the membranes rupture with full dilatation of the os, no moulding takes place, since so soon as the cervical sheet has been withdrawn above the head, the head passes directly into the pelvic cavity, and a few good pains serve to drive it downwards. Where there is disproportion, however, moulding may occur either, as stated, during the first stage of labour after rupture of the membranes, or after the full dilatation of the os as it passes through the cavity of the pelvis. Moulding is not always easily recognized, as in a number of cases it is obscured by the presence of a caput. The presence of a caput, however, indicates moulding beneath it, since it would be difficult for oedema occurring under the galea aponeurotica to distend the scalp were the skull underneath it not collapsed in direct proportion.

A Trial of Labour

As previously mentioned, cases of gross disproportion are recognized by the presence of contraction of the pelvis alone, and Caesarean section is decided upon. In the presence of minor disproportion, however, it is advocated that the patient be allowed to pass into spontaneous labour at term, and that the labour be conducted as a trial of labour.

An accurate decision as to the outcome can usually be made within the first twelve hours of labour, and during this time the progress of labour should be estimated by abdominal palpation and rectal examination only. With premature rupture of the membranes, however, a vaginal examination should be performed, preferably under an anaesthetic, and the surgeon should be prepared, if thought necessary as a result of his examination, to proceed with a Caesarean section. In these cases a lower segment Caesarean section operation is considered better than a classical operation.

During the progress of a trial of labour it must be constantly borne in mind that the relative size of the head to the pelvis is not the only factor concerned with a successful termination. The capacity of the patient to deliver herself must be considered, and it must be remembered that this capacity depends not only upon the capacity of the pelvis to permit the passage of a foetus and upon the ability of the pelvic joints to permit of movement, but also upon the force the uterine muscle is able to exert, and this in its turn is largely influenced by the patient's ability to bear pain. The position of the foetus is also noted, and the occipito-posterior position must be regarded with caution.

With the onset of labour, in the majority of cases, increasing flexion of the head will take place and a diminishing foetal diameter will engage. In some cases, however, particularly in those where the foetus presents by the vertex with the occiput situated posteriorly, the head may become increasingly extended, and an increasingly large diameter may attempt to engage.

It is fairly easy to appreciate the type of patient with whom one is dealing, and to apprehend whether she is the type of woman who is capable of passing through a long and difficult labour with fortitude. After labour has been in progress for some time, by abdominal examination it can be ascertained whether the foetal head has engaged or not, and rectal palpation will determine the size of the os and the presence of the membranes.

The presence or absence of the membranes is of vital significance, as in cases of supposed disproportion where the membranes remain unruptured and the patient is in good condition delay need not cause undue worry, as the foetus will be uninjured and will not be subjected to undue risk by prolongation of the labour, even up to two or three days. Also it can be taken as certain that the head is not extended, and that it fits the pelvis. Only on one occasion have I seen a case where the membranes remained unruptured and thinning of the lower segment took place in the course of a three-days labour, leading to threatened rupture of the uterus. In this case, however, there was not any disproportion, the os did not dilate, and the condition was due to abnormal uterine action.

In cases of disproportion giving rise to obstruction the membranes will rupture before full dilatation of the os. The presence of unruptured membranes indicates a well-flexed head and no disproportion, but the converse does not follow, as early rupture of the membranes may suggest, but does not always imply, obstruction. Where there is obstruction the head is prevented from descending into the lower uterine segment, and so the valve action is absent. The unsupported membranes have thus to withstand the full force of uterine contractions, and they consequently rupture. After the rupture of the membranes the cervix lacks a dilator, and liquor escapes. Uterine contractions are no longer useful, since the os does not dilate and the cervix is not withdrawn. Obstruction to the descent of the head is increased as the cervical sleeve lying below the head becomes oedematous as a result of the continuous pressure applied upon the lower uterine segment between the head and the brim.

This oedema of the cervix is accompanied by the development of a caput succedaneum and moulding of the head, and these two processes together permit of the oedematous scalp applying itself to the oedematous cervix in the formation of a new dilator. Following upon this new distension of the os, contractions increase and the first stage may proceed, and in some cases, if left alone, after a prolonged and difficult labour the uterus may succeed in withdrawing this cervical sheet above the head, and thus allow the naked head to apply itself to the pelvis, after which the second stage will proceed normally.

Frequently, however, dilatation alone takes place, and the uterus fails to withdraw the oedematous cervix above the head. In some cases the cervix splits, and the extra room made by this allows the head to pass into the pelvis. In rare cases the cervix has been known to slough off in front of the head, which has descended into the vagina with the cervix in front of it. In other cases, however, retraction may proceed and rupture of the uterus may ensue.

It will be understood from the foregoing that it is essential that a vaginal examination should be made immediately upon rupture of the membranes. In some instances the os will be found to be fully dilated and the cervix withdrawn, and the head will then descend into the pelvis in the course of the next few pains. On the other hand, the os may be only partially dilated, but the head may have descended and may be applying itself to the lower segment, which will be felt stretched over the head. The lips of the cervix will not be oedematous, but will be felt to be of normal thickness both anteriorly and posteriorly. Here the head has descended and is distending the os, and is itself acting as a dilator. Such cases,

especially in the presence of normal uterine contractions and normal fortitude, should be left alone, and spontaneous delivery or delivery by the application of the forceps may be anticipated. Where fortitude is bad, however, and pains are feeble, Caesarean section should be considered if the os is not more than two-shillings dilated, and especially if the patient is elderly.

In other cases a partially dilated cervix will be found to be hanging loosely in the vagina unfilled by the head, which is high, and which does not descend during a contraction. The unsupported area of the head may have developed a caput or may exhibit moulding. On abdominal examination in such cases the bladder may appear to be prominent, but on the passage of a catheter only a few ounces of urine are withdrawn. This prominence of the bladder is due not to overdistension, but to the fact that it is elevated with the lower uterine segment. The height of the bladder may be looked upon as a good indication of the height of Bandl's ring. Such cases usually require Caesarean section, even in the presence of good contractions and good fortitude, whereas in the presence of inertia Caesarean section is the only possible means of delivering a live child.

Termination of Labour

Where a trial of labour has been conducted the labour may terminate in one of three ways:

1. By normal delivery—that is, spontaneous delivery or delivery by the application of the forceps to the head which is low.
2. By Caesarean section.
3. By delivery of a foetus, intact but dead, by means of the forceps.

Special emphasis is laid on the fact that the foetus in this latter group is delivered intact—that is, not by means of craniotomy. Should it be necessary to perform an operation of craniotomy it is obvious that the observer has committed an error of judgement during the trial of labour, as such a case should have been terminated by Caesarean section. Nevertheless, even where a trial of labour is conducted with all care and skill, in a small percentage of cases it is necessary to apply the forceps to the head which is high, and the labour may end with the delivery of a dead foetus.

Taking these results into consideration the practice of a trial of labour in primiparae may be used as a method of classifying not the pelvis but the patients themselves into three groups:

- (a) Patients in Group 1 above could be safely left to deliver themselves in future.
- (b) Patients in Group 2 will always require Caesarean section.
- (c) Patients in Group 3 should be delivered by the induction of premature labour on future occasions.

Summary

1. Cases of gross disproportion can be recognized solely by the recognition of gross contraction of the pelvis.
2. The outcome of labour, in cases where minor disproportion is thought to be present, is uncertain, and a decision can be made only after labour is in progress.
3. Pelvic measurements are not unimportant, but must be considered in conjunction with all other factors before a prognosis can be arrived at.
4. A vaginal examination should be made in every case during pregnancy.
5. Induction of premature labour for disproportion has no place in the delivery of a primipara. Induction of premature labour is a useful method in the delivery of a multipara where a record of the history of former labour has been carefully kept and can be used as a guide as to the capacity of the patient to deliver herself.
6. A trial of labour will estimate the patient's capacity for delivery, and no amount of skill can enable an observer to decide upon this capacity during pregnancy.
7. Where induction of premature labour is practised in the case of the primipara it may be done unnecessarily, and there is little to prevent the obstetrician repeating this error in the treatment of future pregnancies.