OBSTETRICS IN GENERAL PRACTICE

Prolonged Labour

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Labour is considered to be prolonged when it exceeds 24 hours, but delay can often be recognized at an earlier stage if, despite good contractions, the cervix is slow to dilate or the presenting part is slow to descend. It should be emphasized at the outset that if any condition is recognized before the onset of labour which leads the family doctor in charge of the case to suspect that labour will be difficult or prolonged, then the patient should be transferred to hospital either before it commences or at its onset.

No attempt will be made here to present a classification of the causes of delay in labour. We shall consider only those complications which may crop up unexpectedly in a case booked for confinement at home or in the G.P. maternity unit.

Uterine Inertia

Hypotonic Type

In this condition the contractions occur infrequently but usually fairly regularly. They are short and weak, and as a result the cervix is slow to dilate. Usually the patient is little distressed and sedation should be withheld except to provide sleep at night. An enema may help to stimulate contractions. The bladder should be kept empty and the patient should be encouraged to walk about during the labour. Often spontaneous acceleration occurs in the later stages of the labour.

Hypertonic Type ("Colicky Uterus")

The tone of the uterine muscle is greatly increased. Contractions are frequent, irregular, erratic, and acutely painful, both in the lower abdomen and in the back, while relaxation between the contractions is usually incomplete. Utero-placental circulation is often chronically impeded, so that foetal asphyxia may develop. Vomiting and retention of urine often add to the general misery of the patient and are other manifestations of a generalized sympathetic hyperactivity. This condition requires generous sedation and analgesia. Pethidine and promazine ("sparine") given intramuscularly should not be withheld. Sleep at night may be induced by morphine given intramuscularly. The patient is best kept in bed and reassurance should be maintained in the hope of inspiring confidence and eliminating the fear which is probably the underlying cause of the condition in many cases.

Cervical Dystocia

This may occur as a result of previous operation or injury to the cervix, or it may be seen in primigravidae owing to functional rigidity of the cervix, which on examination feels hard, tight, and unyielding. A large caput forms and labour is painful, with severe backache.

Delay in the Second Stage

Uterine exhaustion

This may occur especially in the anaemic, debilitated, and undernourished patient, or when there has been a prolonged first stage. Overstretching of the uterine muscle, as in hydramnios, and multiple pregnancy are also contributory causes. The treatment for this condition is either to rest the uterus by administration of a quarter of a grain (16 mg.) of morphine intramuscularly, or to relieve it of further effort by the timely application of forceps or vacuum extractor. The vacuum extractor, recently the subject of much interest, is rapidly establishing itself as an essential part of obstetric equipment. Easy and safe to apply, non-traumatic and relatively cheap, it can and should be applied under pudendal block anaesthesia. This enables the mother to participate in the delivery and to assist by pushing at the same time as the contractions. Many G.P. obstetricians of to-day who have become skilled in the application of low forceps are reluctant to abandon the time-honoured procedure and to learn a "new-fangled" technique, but it is probable that subsequent generations of family doctors will carry the vacuum extractor as an indispensable part of equipment in the midwifery bag. Details of its use and application are to be found in recent editions of many modern textbooks.

Minor Degrees of Pelvic Outlet Contraction

Frequently a patient progresses normally in labour till late in the second stage, when delay occurs owing to a slight funnelling of the pelvic outlet. This can usually be overcome by a generous episiotomy, the technique for which will be discussed in a later contribution to this series.

Impaction of the Anterior Lip of Cervix

When the patient has been voluntarily bearing down before full dilatation of the cervix, the anterior lip may become pinched between symphysis pubis and foetal head. With alarming rapidity the cervix becomes swollen and oedematous and may form a long tongue almost filling the vagina. Once this condition is recognized, treatment consists simply in pushing the lip upwards between contractions and holding it till the next pain starts, so that the head can slip past the obstruction. Thereafter delivery is usually accomplished with surprising speed.

Rigidity of the Pelvic Floor

This condition occurs most commonly in elderly primiparae, and, if untreated, may be associated with much suffering and considerable prolongation of the second stage, terminating in extensive perineal laceration. Timely episiotomy is the treatment of choice.

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Full Bladder or Rectum

Over-distension of the bladder may cause delay in the second stage by interference with the action of the abdominal muscles, and in cases of cystocele the descent of the head may be impeded by the bulge of bladder into vagina. Similarly a full rectum or a rectocele may retard the advance of the presenting part. In such cases emptying of the appropriate viscus by catheter or enema is the only treatment necessary. A self-retaining catheter should never be left in position. There is no surer method of causing urinary infection.

No apology is made for describing such simple and obvious causes of delay in the second stage. They are much commoner and more important than many rarer conditions which occupy many pages of elaborate description in standard textbooks.

Malpresentations and malpositions are dealt with in a subsequent contribution to the series.

It must be emphasized that in the majority of cases no specific cause can be found for the delay which occurs in labour so that there is a large "idiopathic" group in whom there may be nebulous "endocrine factors" or "psychological factors" or "hereditary factors."

In conclusion it should be remembered that any two or more of the above factors may co-exist.

Management of Prolonged Labour

Whatever the cause, the objects of treatment are simple—namely, to recognize and to avoid or minimize maternal and foetal distress and discomfort until delivery has been completed. Donald¹ makes reference to a third form of distress—"obstetrician's distress"—which often supervenes in these cases, especially in domiciliary midwifery, "when importuning relatives may easily distract judgment already wavering in the cause of plain humanity, with the result that intervention is often prematurely, ill-advisably or unnecessarily undertaken."

It is important in all cases to know when the membranes have ruptured; it is generally true that if the membranes are intact the mother and the child are safe. Not only is the risk of infection much less in these circumstances but foetal asphyxia is also less likely, since the placental site is not subject to the retraction which occurs after the membranes have been ruptured. In addition to the routine care of the patient in labour, as described last week (p. 1361), the following are of importance.

The Mother

Constant supervision is necessary and good nursing care of great importance. It should not be forgotten that as time passes in a prolonged labour not only the mother and the child but also the midwife may become exhausted, so that her judgment may become faulty and her vigilance slacken when they are most required. The mother should not be left alone unless in a sound sleep and then only for a few minutes.

Morale should be sustained. It is of paramount importance that not only the patient but also the relatives have complete confidence in those in attendance. As each hour passes and anxiety increases, especially during the long hours of the night, it requires a firm and tactful yet kindly and sympathetic nurse to keep the situation under control.

Fluid Balance should be maintained. Dehydration must be carefully watched for, as evinced by a dry tongue and skin, pulse rate rising above 100 per minute, concentrated urine, and the presence of ketonuria. It should be treated by the setting up of an intravenous drip of 5% glucose. The advent of disposable sets for fluid infusion has rendered intravenous therapy much simpler in domiciliary work. Vomiting often occurs in

prolonged labour due to hypertonic inertia, and a patient who is vomiting will quickly become dehydrated. Fluids given by mouth are not only dangerous, but, since the emptying time of the stomach is reduced and absorption delayed, they are probably of little effect in combating dehydration. The danger of course lies in the inhalation of gastric contents, should a general anaesthetic become necessary.

The importance of keeping the bladder and bowel empty has already been stressed. In cases of prolonged labour the enema should be repeated after 18 hours.

Sedation should be given as required. This will be referred to in a subsequent article.

Antisepsis. In order to reduce the risk of foetal pneumonia, a broad-spectrum antibiotic such as ampicillin should be given after the membranes have been ruptured for 12 to 15 hours or 36 hours after the onset of labour, whichever is sooner. Intramuscular administration is preferable, since absorption from the gut is uncertain during labour. At the same time, if laboratory facilities are available, a high vaginal swab should be taken and the report made available as soon as possible.

Personal toilet is important. Assistance and encouragement in cleaning her teeth and brushing her hair will be much appreciated by the patient, and it will also help to soothe anxious relatives who are much affected by the general appearance of the patient, and consequently dismayed if she is unkempt, untidy, bedraggled, and generally discomfited.

Uterine Stimulants

Apart from surgical procedures designed to bring labour to a conclusion, there are two measures which may be of use in prolonged labour—oxytocin drip and artificial rupture of the membranes.

(a) *Oxytocin Drip.*—This drip is of value in cases of hypotonic uterine inertia, but should *never* be employed if there is any question of the uterus being in the hypertonic state. The method of administration should be by the intravenous route, starting cautiously with 2 units to the pint (570 ml.) of 5% glucose solution in water given initially at the rate of 10 drops per minute and increased as necessary. The doctor must be prepared to sit with the patient while this treatment is in progress, so that adjustments can be made to the rate of administration of the drug as indicated by the frequency and strength of contractions and by the condition of the foetus.

(b) *Artificial Rupture of the Membranes.*—Again in cases of hypotonic uterine inertia, after the cervix has reached three-fingers dilatation or more, this procedure may be of value. Some obstetricians favour stripping of the membranes from the lower uterine segment, but both procedures probably carry more risk of infection than they are worth. When hypertonic inertia exists, rupture of the membranes in no way improves the behaviour of the uterus.

Assessment of Progress

In all cases of prolonged labour, progress must be assessed constantly to ensure that dilatation of the cervix and advancement of the presenting part are taking place. If neither is present or if mother or foetus is showing signs of distress then some form of interference will be necessary. This may be caesarean section, forceps delivery, vacuum extraction, or, in very rare cases, incisions of the cervix.

The Foetus

In cases of prolonged labour, especially after the membranes have ruptured, the foetus is subject to ever-increasing risk with each hour that passes. Its condition requires careful

supervision and the following signs of foetal distress must be carefully watched for.

Slowing of the Foetal Heart Rate. A drop to rates below 100 per minute, especially if accompanied by irregularity, almost invariably denote foetal hypoxia of some degree. This is the most reliable sign of foetal distress.

Irregularity of the foetal heart rate, if persistent, is a fairly reliable indication of foetal asphyxia.

Other Abnormalities of the Foetal Heart Sounds. Foetal tachycardia above 160 per minute is often regarded as a sign of foetal distress, but unless prolonged for one to two hours it is probably of little significance. We have frequently delivered, after normal labours, perfectly healthy babies whose foetal heart chart showed short bursts of tachycardia. Muffling of the heart sounds is seldom significant. It is usually due to a change in position of the foetus, making the sounds less accessible to the stethoscope.

Meconium Staining. Except in cases of breech presentation, the presence of thick fresh meconium in a hitherto clear liquor is a serious sign and is due to asphyxia causing loss of tone of the anal sphincter in the foetus.

Excessive foetal movement and *funic souffle*, though conscientiously described in most textbooks, are not of much practical value, since the one almost immediately precedes intra-uterine death and the other is so seldom heard and so much confused in description that few, if any, listeners would recognize it.

Treatment of Foetal Distress

It is well known that even a short period of foetal asphyxia may lead to spastic paralysis or mental deficiency in later life, and consequently prompt measures must be taken when the signs indicate anoxia. **Oxygen** should be given to the mother as a routine procedure. If sedation with morphine or pethidine has been administered a short time previously, then nalorphine or levallorphan may be given intravenously to the mother in the hope of counteracting these effects. Of course, the most effective measure is to expedite delivery, and the appropriate action such as episiotomy, forceps delivery, vacuum extraction, or caesarean section will be ordered as required, in order to reduce to the minimum the duration of foetal hypoxia.

The Asphyxiated Baby

For clinical purposes, the traditional division into asphyxia livida and asphyxia pallida is still valuable, but it is emphasized that they are successive states in the same process and that the former may merge into the latter.

In *asphyxia livida* the infant is a dusky reddish-blue colour and has good muscle tone; usually the cord is pulsating strongly and the heart beat is of good quality and regular. This type of asphyxia is often due to a blocked airway, which should be cleared, if possible, before the first gasp is taken. The child should be tilted head downwards and the best available method of suction employed to clear the air passages. Then, if available, oxygen should be given by funnel or mask held over the face. In domiciliary practice oxygen is unlikely to be available and the first gasp should be stimulated by briskly rubbing the

infant's back or chest or pinching or slapping a foot. If morphine or pethidine has been given a short while previously, nalorphine or levallorphan may be given into the cord vessels. Warmth is essential, and when the baby is breathing satisfactorily it should be left undisturbed in a warm cot which is tilted head down at an angle of about 15 degrees. Later the head may be propped up, to reduce the weight of abdominal viscera on the diaphragm.

Asphyxia pallida is a much more serious condition and is a more advanced stage in the same process. The clinical picture is one of profound shock and frequently cerebral damage has already occurred. The colour is greyish white and the child is quite flaccid, with slow feeble apex beat and weakly pulsating cord. Sphincters are relaxed and meconium may be leaking from the anus. The initial treatment is as for asphyxia livida, but no attempt should be made to apply vigorous resuscitative measures. Warmth is again essential. If oxygen is available it should be given after intubation of the trachea; or if facilities are not available for this, by the intra-gastric route.

Mouth-to-mouth Breathing. This method has returned to popularity within recent years and is frequently worth a trial, especially if endotracheal intubation is not available. After the mouth and upper air passages of the infant have been cleared of mucus and liquor, a piece of gauze is placed over the baby's lips and his nose held. The hand then applies firm pressure to the epigastrium in order to prevent air loss into the stomach. The attendant puffs out his cheeks and then expels air into the baby's mouth, about 25 to 30 times per minute, using only the pressure of the cheeks.

Eve's method of artificial respiration may also be attempted. It consists of cradling the child in the arms and rocking it from side to side, lowering first the head and then the feet to an angle of about 45 degrees. In many cases it is an effective form of artificial respiration and Eve also claims that it improves the venous return to the heart.

Hypothermia. The value of hypothermia in preventing severe degrees of cerebral damage in asphyxiated babies is beyond doubt, and in an emergency some success has been claimed for the crude method of placing the baby under cold running water. A reduction in temperature to the region of 27° C. is desirable. Without the special equipment necessary to record such low temperatures the method is hazardous and should be employed only when all else fails.

Aftercare. When resuscitation of the severely asphyxiated infant has been achieved, it should be transferred to a warm cot and thereafter handled as little as possible. Feeding should be avoided for the first 24 hours and an antibiotic, such as penicillin, should be given in order to lessen the danger of bronchopneumonia. Cyanotic attacks may occur and should be combated by oxygen administration. If there are any indications of cerebral irritation, sedation with chloral hydrate or phenobarbitone should be prescribed.

In the preparation of this article I have been greatly helped by Dr. J. Pearson, general practitioner, Paisley, whose many suggestions have been incorporated.

REFERENCE

- ¹ Donald, I., *Practical Obstetric Problems*, 1959. Lloyd-Luke, London.