THE MANAGEMENT OF PROLONGED LABOUR

THE NEED FOR HOSPITALIZATION

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Any labour that lasts for more than 36 hours should be considered abnormally prolonged. Therefore any patient who has been in the first stage of labour for more than 24 hours must be admitted to a hospital (if not already there) having facilities for (*a*) all operative obstetric procedures and (*b*) adequate resuscitation and care of newborn infants. There is no place for domiciliary treatment with such prolonged labours.

THE EFFECTS OF PROLONGED LABOUR

1. Effect on the Mother

Emotional effects include loss of heart and fortitude, and loss of confidence in herself and her doctor. She appears to be less cooperative and often moans 'never again'. As the hours pass, she tends to become worried and anxious, and later restless and distressed.

Physical effects are in the main due to lack of rest because of the recurring pain of the contractions, dehydration from inadequate intake of fluids in association with poor absorption, and, in the later stages, infection. Thus we see a patient with a rising pulse and respiratory rate who may also have a pyrexia. She may have difficulty in emptying the bladder and the bowel becomes distended. Inadequate fluid and caloric intake is followed by dehydration, ketosis and acetonuria and intractable vomiting may develop.

Local effects determined on palpation of the uterus depend on whether obstructed labour or incoordinate labour is dominant. If the former, strong prolonged frequent contractions occur and a rising Bandles' ring is felt indicating the approach of uterine rupture. If coordinate uterine action of the hypertonic type dominates, then the patient has irregular, frequent and very painful contractions. On palpation, the contractions do not feel strong yet the patient often complains of their intensity before the observer can detect them. A Bandles' ring is rarely, if ever, seen or felt. Many of these patients have a desire to bear down before full dilatation of the cervix. Bearing down at this stage must be resisted because it will increase the oedema of the cervix and add to the difficulties of labour. On vaginal examination, the presenting part may be found to be high, with the cervix partially dilated and poorly applied to the presenting part. The cervix is thick, membranes usually rupture early and caput succedaneum may be evident. The vagina becomes hot and dry.

2. Effect on the Foetus

Prolonged labour always exposes the foetus to an increased risk, which rises after 24 hours and then very steeply after 36 hours. A rising foetal heart rate bears an association with the rise in maternal temperature, and may be an early indication of foetal distress. It usually precedes the ominous slowing. The development of an irregular rhythm and strength is also of grave import.

The presence of meconium is a further sign of foetal distress and in the presence of prolonged labour clearly indicates the need for intervention on behalf of the foetus. The foetal distress results from a progressive intra-uterine hypoxia with, in some cases, foetal pneumonia and septicaemia due to an ascending infection. Such a state of affairs before and during delivery may result in intracranial haemorrhage.

THE CAUSES OF PROLONGED LABOURS

The cause of a prolonged labour is usually found among adverse factors in (*i*) the pelvis (passage), (*ii*) the foetus (passenger) and (*iii*) the uterine action (power). More usually a combination of factors is operative rather than any one single factor.

1. The Pelvis

Pelvic disproportion may be (*a*) absolute, such as a contracted pelvis, or (*b*) relative, as for example, with tumours or cysts which may be in the pelvic bones or merely in the pelvic organs.

2. The Foetus

The factor may occur in a normal-sized baby with a malpresentation such as brow, occipito-posterior position and mento-posterior position. It can also be found in an unusually large infant (diabetes) and an abnormal infant with an unusually large feature (hydrocephaly, foetal ascites).

3. Uterine Action

The uterine action may be of two types:

(*a*) *Overaction*, as seen in obstructed labour with absolute cephalo-pelvic disproportion.[1] The parous uterus responds to obstruction by more frequent and more powerful coordinate contractions.

(*b*) *Underaction*, which may be classified as (*i*) false labour, (*ii*) hypotonic inertia and (*iii*) hypertonic inertia of different varieties, viz. asymmetrical uterine action, cervical dystocia, constriction ring dystocia and colicky uterine action.

These three broad groups are, of course, in turn influenced by the height, build (e.g. dystocia dystrophic type), age at first parity and social class of the patient. What the lower social group lose in their small pelvis, they gain in their youth and good uterine action. What the upper social groups gain in their larger pelvis, they lose in their greater age and poor uterine function.

THE MANAGEMENT OF PROLONGED LABOUR

A. Prophylaxis

Before labour. Better diet and living conditions, particularly in the growing years, help to eliminate contracted pelvis. This is clearly seen in civilized communities.

Better obstetric services and selection of obstetric patients for hospital confinement—at present this aspect is severely handicapped by a shortage of midwifery beds especially in many country hospitals.

Increased health education and training for childbirth and motherhood during the antenatal period, reduces fear of the event, and the cooperation that follows may lead to a more efficient uterine action.

Adequate antenatal care ensuring detection of cases of absolute disproportion from either pelvic or foetal factors eliminates many potential cases of prolonged labour.

During early labour. The most useful practical method of avoiding incoordinate uterine action is to give sedatives

and analgesics in early labour so that pain is relieved and apprehension is allayed. Such drugs as Pethidine and morphine given either alone or together with promazine and chlorpromazine are excellent for this purpose and will not 'get a patient out of labour'. It is important to remember that drugs given orally are only poorly absorbed and therefore have little effect; accordingly administration should always be intramuscular or intravenous. When in early labour disproportion or incoordinate uterine action is suspected, the patient's confidence must be maintained by sympathy and tact. Never leave a woman alone during labour. The possibility of delay is best not discussed with the patient or her relatives, all of whom should be reassured.

Many of the complications leading to prolongation of the first stage can be diagnosed and dealt with before labour occurs. It is obvious however that such factors as uterine inertia cannot be anticipated and these will have to be treated as they arise.

B. Treatment of the Established Condition

As the patient is usually in pain, dehydrated and ketotic, general measures come first. Adequate sedatives and analgesics are given—if the need is urgent, by intravenous route—so that freedom from pain and anxiety and restoration of confidence are ensured. Reassurance of the patient about her own and the foetal condition is important.

Oral feeding is discontinued and intravenous therapy with 5% dextrose in water or 10% invert sugar is immediately commenced. The patient is placed on an intake-output chart and all urine specimens are examined for abnormal constituents.

If pyrexial, a broad-spectrum antibiotic, preferably ampicillin, should be given systemically. Thereafter a full assessment of the case is made to determine the nature of the uterine action, the possibility of any cephalo-pelvic disproportion and the presence or absence of foetal distress.

The uterine action is assessed by a careful 20 - 30 minute abdominal examination of the frequency, duration and type of contraction. Cephalo-pelvic disproportion is determined by a careful abdominal and vaginal examination and if necessary an erect lateral pelvic X-ray. Of special importance is the vaginal examination and the following should be noted:

(i) *Cervix*. The dilatation, effacement, thinning, application to the presenting part and any changes during a contraction should be carefully noted. A thin, effaced, well-applied cervix on the whole is more favourable for vaginal delivery than a thick, loose, poorly effaced cervix.

If the membranes are not ruptured they should be artificially broken to allow drainage of liquor as this gives a further assessment of the foetal condition by showing the presence or absence of meconium and also improves the uterine action in a majority of cases.

(ii) *Vertex*. The station, presentation, evidence of deflexion, presence of moulding and caput, any suggestion of hydrocephaly and any overriding of the symphysis pubis (Munro-Kerr technique) should be carefully ascertained.

(iii) *Pelvis*. The size, shape, relationship to the presenting part and the presence of any tumours must be assessed. Pertinent to the tumour problem is the presence of a full bladder or rectum, either of which should be emptied if found.

The presence of foetal distress is assessed by careful auscultation of the foetal heart, examination of the liquor amnii for meconium and, where facilities are available, by foetal scalp-blood sampling for the determination of the foetal acidosis (Saling technique).

At the end of this critical examination the attendant should have a clear assessment of whether the prolonged labour is due to disproportion or inefficient uterine action or both. He should also be aware of whether foetal distress is present and should have a picture of both the mother's general physical and mental state. If absolute cephalo-pelvic disproportion or foetal distress is present, the labour should immediately be terminated by caesarean section, or in a certain few patients by symphysiotomy. All other cases, in the hope of achieving a vaginal delivery, can be treated expectantly for a further arbitrary period which will vary from case to case and which will depend mainly on any progress in the labour, assessed by further dilatation of the cervix.

Correction and Improvement of Inefficient Uterine Action

General measures as already detailed must be continued.

If the uterine action is hypotonic-infrequent, but has regular, weak and short contractions, then the use of an oxytocic is necessary. The oxytocic may be given intravenously by drip infusion or buccally but *never* intramuscularly. Cases of this type usually progress to full dilatation without further difficulty.

If the uterine action is hypertonic and incoordinate-irregular, painful contractions of variable duration, with pain often felt by the patient before detection of the contraction by the observer, then oxytocics by any route are of little practical value and serve only to increase the intensity of the pain. A diversity of treatment has been tried in this situation including heavy sedation,[1] caudal anaesthesia,[2] continuous epidural anaesthesia, para-cervical nerve block,[3] abdominal decompression, the vacuum extractor in the first stage of labour,[4] the use of gamma-OH, and the Toullousaine method of delivery (the simultaneous, but separate vein intravenous administration of pitocin and 'sleep' doses of thiopentone).

It is difficult to compare one method with another as regards results. Practically only one, at the most two, of these methods can be applied to any particular case, but at least one should be tried. If, after 4 - 6 hours with the more conservative methods, or after 40 minutes with the use of the vacuum extractor or 20 - 30 minutes with the Toullousaine method, dilatation of the cervix has not progressed to the fully or nearly fully dilated state, caesarean section should be performed. Continuing the application of these methods in cases of prolonged first stage of labour beyond the time limits defined, increases the perinatal mortality and maternal morbidity markedly.

Management of Second Stage of Labour

Those patients who achieve full dilatation of the cervix after a prolonged first stage of labour should be allowed only a short second stage, i.e. 15 - 20 minutes of bearing down. If delivery is not completed in that time, forceps or a vacuum extractor should be applied.

Management of the Third Stage of Labour

If there has been uterine inertia during the first and second stages, it may continue into the third stage with the risk of postpartum haemorrhage. Accordingly ergometrine,

0·5 mg., is given intravenously with the crowning of the foetal head and an active delivery of the placenta (Brandt Andrew technique) *or* controlled cord traction, is undertaken.

Follow-up Management

An attempt to arrive at an accurate diagnosis of the cause of prolonged labour must be made since it can affect the patient's management in subsequent pregnancies.[1] A postpartum X-ray pelvimetry is often of tremendous value.

Management of the Newborn Foetus

These infants have an increased chance of having at birth, or developing soon after birth, an intracranial haemorrhage or pulmonary infection. They should be cot-nursed and critically observed for at least 24 hours. Vitamin-K analogue, 1 mg. intramuscularly, is given soon after birth. Where there is a probability of infection being present antibiotics are given.

SUMMARY

Any labour that lasts for more than 36 hours is abnormally prolonged. There is no place for domiciliary treatment: the patient must be admitted to an institution where all operative procedures pertaining to obstetrics and adequate resuscitation of the newborn can be performed. General measures to relieve pain, and to correct dehydration and ketosis are necessary in all cases.

If absolute cephalo-pelvic disproportion or foetal distress is present, the labour should immediately be terminated by caesarean section. All other cases can be treated expectantly, in the hope of achieving a vaginal delivery, for a further arbitrary period which will vary from case to case and which will depend mainly on any progress in the labour, assessed by further dilatation of the cervix.

If there has been inertia during the first and second stage, it may continue into the third stage with the risk of postpartum haemorrhage. Ergometrine, 0·5 mg. intravenously, is then given with the crowning of the foetal head and active delivery of the placenta (Brandt Andrew technique) or controlled cord traction is undertaken.

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