



Poor progress of labour

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Summary Poor progress of labour is the leading indication for primary Caesarean sections, instrumental vaginal deliveries and the associated complications. Prolonged labour results in maternal exhaustion and dehydration, the need for epidural analgesia for pain relief, maternal pyrexia, possible maternal or fetal infection, the need for operative deliveries, babies with less than optimal outcome, postpartum haemorrhage, the need for blood transfusion and possible postpartum poor well being. In developing countries it may lead to obstructed labour, fetal or neonatal death, uterine rupture, the need for symphysiotomy or destructive operations on the fetus, the late sequel of vesicovaginal fistula and, in rare instances, maternal death due to sepsis or haemorrhage. Many remedies used in the first stage of labour take the form of active management, which starts with antenatal education. Early diagnosis of labour, one-to-one care, reassurance, early amniotomy, oxytocin augmentation and hydration are essential elements. Some groups have explored the value of posture, ambulation, being in water and support by a 'Dula' (an untrained person) throughout labour. In the second stage, various forms of management which are more time based, depending on the parity and the use of epidural, have been proposed. Despite all these efforts, operative delivery rates have not reduced, emphasising the need for more research to resolve this common problem of poor progress of labour.

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Introduction

Labour is a continuum from the beginning of painful uterine contractions associated with effacement and dilatation of the cervix (i.e. onset of labour) to delivery of the baby, placenta and membranes. To assist management this continuum is subdivided

into three stages of labour, the first stage constituting the duration from the onset of labour to full dilatation of the cervix, the second stage from full dilatation of the cervix to delivery of the baby and the third stage from the delivery of the baby to delivery of the placenta and membranes. At the onset of labour the cervix is 2–3 cm long and is closed. The cervix effaces, becomes thin and dilates to 3–4 cm in the latent phase. This may take up to 6 h in a multipara and up to 8 h in a nullipara. The cervix tends to dilate at a speed

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greater than 1 cm/h from 3 to 4 cm up to full dilatation (10 cm). This is called the active phase of labour.

The second stage is usually about 30 min in a multipara and 60 min in a nullipara. Second stage was thought to be slow if it was more than 1 h in a multipara and more than 2 h in a nullipara. With the introduction of epidural anaesthesia these durations have been revised, based on the degree of descent. One hour is given for the pelvic (passive second stage) phase when the uterine contractions will cause the descent of the head to the perineum and another hour is given for the baby to be delivered by the help of uterine contractions and maternal bearing down efforts (perineal phase or active second stage). With these divisions, prolonged second stage is defined as 2 h in multiparae and 3 h in nulliparae. These definitions of anatomical progress and time lines based on population studies provide an arbitrary guide to define poor progress of labour. The third stage of labour is usually less than 15 min with active management (use of prophylactic oxytocin and controlled cord traction) and is not discussed in this article.

Recognition of slow progress

The progress of spontaneous labour in those who have a normal vaginal delivery has been studied in different countries and ethnic groups. Observations of cervical dilatation after admission to hospital have been plotted graphically against time to display the progress of labour (partograms). The partograms have been designed with additional observations related to *progress of labour* (descent of head, uterine contraction frequency and duration), *fetal condition* (fetal heart rate, degree of caput and moulding, colour and quantity of liquor) and *maternal condition* (pulse, blood pressure, temperature and urinary output).

Normal cervical dilatation patterns (nomograms) have been described for nulliparae and multiparae. The slowest tenth centile of women in spontaneous normal labour dilate at a rate of 1 cm/h in the active phase of labour, although multiparae dilate at a faster rate compared with nulliparae. Based on these observations an *alert line* can be drawn at a rate of 1 cm/h from the cervical dilatation on admission if they are in the active phase of labour, or once they enter the active phase of labour. An *action line* can be drawn 2–4 h to the right and parallel to the alert line. Alternatively a labour stencil can be used to plot the expected progress of labour. The 'grace period' between the alert and

action line needs to be determined based on the physical facilities and manpower available in any unit. A greater interval between the alert and action line will subject a different percentage of women to augmentation (55% of nulliparae if the action line is the same as the alert line and 19% if the action line is 2 h to the right). There is inadequate evidence to recommend the best interval between the alert and action lines.

Cause of slow progress

The cause of slow labour could be problems with the *passage, passenger or power*. Inadequate pelvis is a rare issue nowadays, unless the mother is of short stature, has had a previous injury to the pelvis or has a bony or soft tissue tumour. The passenger, the fetus, may be genuinely too large because of maternal constitutional factors, increased parity, prolonged pregnancy or diabetes. More common is the disproportion due to malposition, with a deflexed head and asynclitism presenting with a larger diameter (e.g. occipito-posterior or lateral position). Rarely, it may be due to malpresentation (e.g. brow presentation). The most common cause of poor progress is inadequate uterine contractions.

Management of slow progress

Latent phase

Labour is one of the commonest clinical situations we deal with daily and yet the diagnosis of labour is difficult unless the woman is in the active phase of labour. Hence the duration of the latent phase is difficult to define and may be up to 20 h in nulliparae and 14 h in multiparae. In a large WHO study, alert and action lines were drawn for both latent and active phases of labour. In that study, labour was diagnosed once two painful contractions were felt in 10 min. Action was taken if a woman did not enter the active phase after 8 h of observed labour. The intervention was artificial rupture of membranes (ARM) and oxytocin infusion and the outcome was good.

The general recommendation for prolonged latent phase should be conservative management unless there are clinical situations indicating that an early intervention may be beneficial. At this stage, women will be apprehensive thinking about the possible outcome of labour. One-to-one support, reassurance, adequate nutrition, hydration,

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