

Case 14

A 30-year-old woman with a postdated pregnancy

Mrs Timmons is a 30-year-old woman in her first pregnancy. It has been an uncomplicated pregnancy but her baby was due 7 days ago and she comes to the antenatal clinic to discuss what to do.

What should happen at the clinic?

- Routine antenatal assessment: blood pressure (BP) and urinalysis
- Abdominal examination including symphysiofundal height (SFH), presentation of fetus and auscultation of fetal heart
- Enquire about general well-being and fetal movements

She tells you that she feels tired but well. She has been feeling plenty of normal movements from the baby. Her blood pressure is 120/80 mmHg which is normal for her and her urinalysis is negative. Her baby feels well grown (SFH is 39 cm), is in a cephalic presentation and the fetal heart is clearly heard. She asks you when you might induce her labour.

What do you say?

This seems to be a 'low risk' pregnancy and therefore national guidelines suggest induction of labour between 41 and 42 weeks. This maximizes the rate of spontaneous labour, decreases perinatal mortality resulting from post-maturity but does not increase the caesarean section rate from failed induction of labour.

She may wish to have a vaginal examination and membrane sweep as there is good evidence that this increases the spontaneous labour rate in postdated pregnancies. Performing a membrane sweep increases the discomfort of the examination and often causes a small amount of bleeding.

Obstetrics and Gynaecology: Clinical Cases Uncovered.

By M. Cruickshank and A. Shetty. Published 2009 by Blackwell Publishing. ISBN 978-1-4051-8671-1.

What will you tell her about your vaginal examination findings?

When a vaginal examination is performed before labour the findings are, by convention, assigned a score known as a Bishop's score which gives information about the favourability of the cervix in relation to labour (Table 14.1).

She accepts a vaginal examination and membrane sweep. Her Bishop's score is 5 and you book a date for induction at term +10. She asks you what will happen when she attends for induction.

What information would you discuss with her?

She will be admitted to an antenatal ward. The baby's heart rate will be monitored using cardiotocography (CTG) to ensure the baby is well. She will have a vaginal examination and prostaglandin (PGE₂) tablets will be inserted into the vagina. These tablets soften and shorten the cervix in preparation for labour.

If she is not labouring she will be given another dose of prostaglandins after 6–8 hours. A maximum of 6 mg PGE₂ tablets will be used. If she does not labour she will have her waters broken (amniotomy) and be started on oxytocin to stimulate her contractions.

She understands and is happy with this plan. At 23.30 that evening she calls the labour ward to say she thinks she is having contractions.

What questions will you ask her?

- When did the contractions start?
- How often are they coming and how long do they last?
- Does she have any vaginal bleeding or discharge?
- Does she think her waters have broken?
- Is she feeling the baby moving?
- Has she tried anything for the pain and is she still coping at home?

Mrs Timmons says she has been having pains roughly every 10 minutes since she went home from the antenatal clinic but now they are coming every 5 minutes. She thinks they last about 1 minute. She had paracetamol earlier but is not coping well with the pains now. She has no vaginal bleeding or discharge and the baby is moving normally. She is keen to come to hospital. You advise her to come to the labour ward.

What will you do when she arrives?

- Perform a CTG
- Assess the contractions for timing and duration
- Perform abdominal and vaginal examinations

She arrives at 00.30. She looks sore and seems to be contracting 3:10 minutes. The CTG is reassuring. Examination reveals that the baby is in a cephalic presentation. Vaginal examination shows that the cervix is 5 cm dilated and fully

effaced. The vertex of the fetal head is 1 cm above the ischial spines (Vx 0–1) and the position of the fetal head is thought to be occipito-posterior.

What will be the plan for Mrs Timmons' labour?

- Adequate analgesia
- Intermittent auscultation of the fetal heart
- Repeat vaginal examination in 4 hours to ensure progress

Mrs Timmons has intramuscular morphine for pain. The fetal heart rate remains reassuring and she is reassessed after 4 hours. Unfortunately, she is still 5 cm dilated. Since the morphine her contractions have decreased to 1:10 minutes (Fig. 14.1; Box 14.1).

Table 14.1 Bishop's score. A Bishop's score <7 is considered unfavourable and usually indicates a more difficult induction process. Scores ≥7 indicate a favourable cervix.

Cervical feature	Score			
	0	1	2	3
Dilatation (cm)	<1	1–2	2–4	>4
Length (cm)	>4	2–4	1–2	<1
Consistency	Firm	Average	Soft	–
Station	–3	–2	–1/0	+1 +2
Position	Posterior	Mid/anterior	–	–

Box 14.1 The partogram

The partogram is a graphical representation of progress in labour and of maternal and fetal observations. The excerpt in Fig. 14.1 only shows cervical dilatation but in reality it charts maternal pulse, BP and temperature every 15 minutes. Fetal heart rate is also noted every 15 minutes. Frequency and strength of uterine activity is recorded every 30 minutes as is the colour of any liquor draining and any drugs administered. Cervical dilatation, and descent and position of the fetal head are marked down after each vaginal examination.

The partogram therefore provides an 'at a glance' guide to the progress of labour and the maternal and fetal condition.

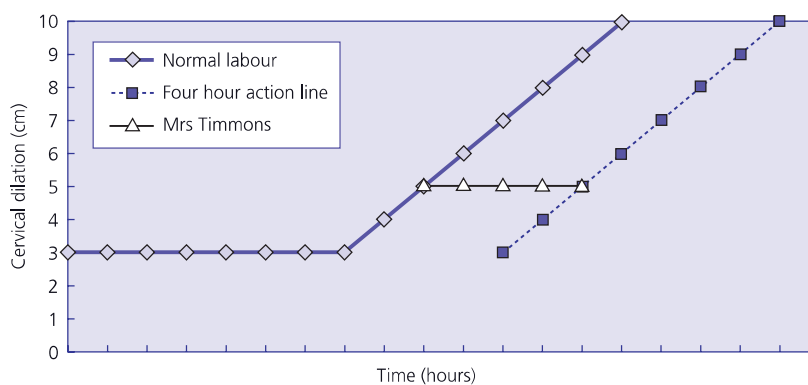


Figure 14.1 Partogram to assess progress in labour.

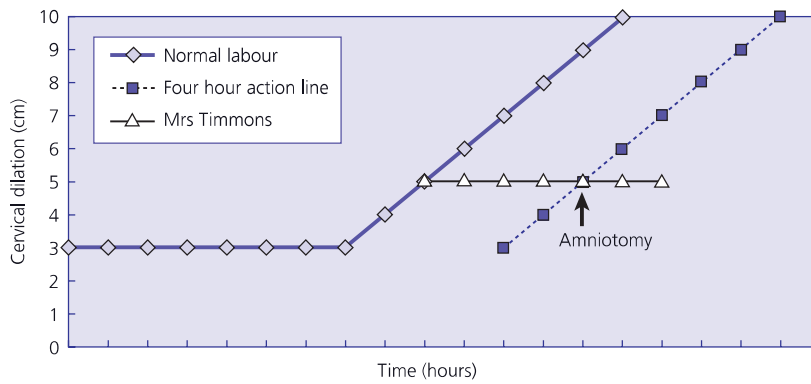


Figure 14.2 Partogram to illustrate slow progress in labour.

What is the plan now?

Perform an amniotomy to attempt to improve the uterine activity. Reassess in 2 hours to ensure progress.

An amniotomy is performed and the liquor is clear. Mrs Timmons' contractions remain 1:10 minutes and she is able to sleep on and off during the next 2 hours. She is reassessed at 06.30 and found to be 5 cm dilated and the baby is felt to be still occipito-posterior (Fig. 14.2).

What will you tell Mrs Timmons?

Her progress in labour is slower than would be expected. This is probably because her contractions are suboptimal (we would aim for 4–5 moderate to strong contractions in 10 minutes). The baby's head is in a malposition (occipito-posterior) which makes labour less efficient (Box 14.2).

What intervention would you recommend?

As her uterine activity is now virtually non-existent, augmentation of her labour with oxytocin is recommended and reassessment of cervical progress 4 hours after good contractions.

She accepts augmentation of her labour. She is commenced on a CTG which is reassuring and oxytocin is commenced. The oxytocin is gradually escalated and 90 minutes later she is contracting well with four moderate contractions in 10 minutes. She is now very sore and requests an epidural.

What information should you give her?

The anaesthetist will explain the procedure to her and make sure she understands it. She will then be asked to

Box 14.2 Progress in normal labour

Active labour is diagnosed in the presence of painful regular uterine activity once the cervix has reached 4 cm dilated and is fully effaced. In 1955, Friedman studied 200 normal women and determined that the slowest 10% progressed at 1 cm/hour in the active phase of labour. These figures are extremely small and were taken a long time ago and since then mothers and babies have changed significantly. Additionally, these data have not been replicated in other trials and the recent NICE guideline on intrapartum care recommends using 2 cm/4 hours as the minimum acceptable progress in the active first stage of labour. NICE apply this definition of delay in first stage to either primigravid or parous women. However, it should be borne in mind that labours in multiparous women are usually significantly faster than in primigravidae and if they are progressing slowly this should alert the attendants to the fact that something may be wrong. The WHO recommend a 4-hour action line on the partogram which indicates when labour is progressing at a rate 4 hours more slowly than expected. If this line is crossed once active labour is diagnosed, some action should be taken to accelerate or end labour in order to minimize risk to mother and baby.

either lie on her side or sit up and curve her back out. The anaesthetist will put some local anaesthetic in the skin and muscle of her back and then put a needle in her back to find the epidural space. A fine flexible tube is pushed through this needle, the needle is then removed. Drugs (local anaesthetic and analgesics) are given through the tube which is known as a catheter.

The epidural usually works within 10–20 minutes. It remains in place until after she has delivered her baby. A

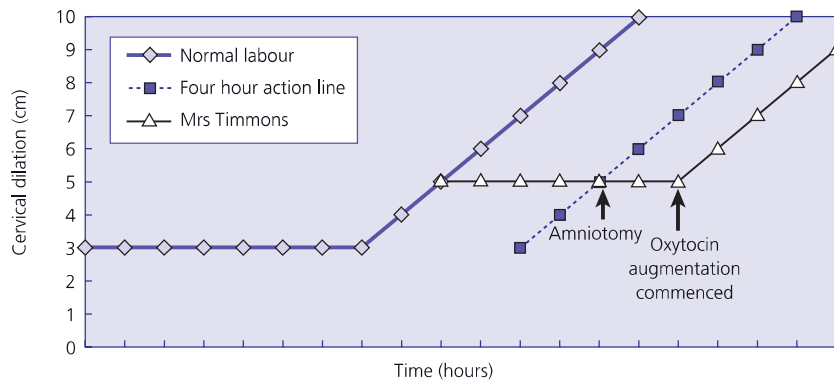


Figure 14.3 Partogram illustrating good progress with oxytocin augmentation.

measured amount of drugs may be given each hour or her epidural may be topped up using a syringe. Occasionally, epidurals do not give good pain relief. If this happens the epidural may need to be repositioned, a different combination of drugs used or the epidural may need to be replaced.

Advantages of an epidural

- Epidurals nearly always give good pain relief
- Because the drugs used are injected into the women's back, very little goes through to the baby

Disadvantages of an epidural

- The woman's blood pressure may drop, which can make her feel sick and dizzy. If this happens she will be asked to turn onto her side, she may be given fluid through a drip and might possibly need an injection to bring her blood pressure up again.
- Her mobility is likely to be limited.
- She may not be able to pass urine. If this happens a catheter will be used to empty her bladder.
- She may feel itchy; sometimes the combinations of drugs used can be altered to help relieve this.
- A small number (about 1%) of women develop a severe headache following an epidural (dural puncture headache). This can usually be effectively treated fairly quickly, but it can sometimes last for a number of weeks.
- She may develop a high temperature which could lead to an abnormally fast heart rate in the baby. This may lead to her and/or her baby being treated with antibiotics and screened for infection.
- There is an increased risk of the baby being delivered by forceps or ventouse.

She is seen by the anaesthetist and her epidural is sited. It works well and there are no further problems until she is reassessed at midday as planned. Her cervix is now 9 cm dilated and the baby has turned to a much more favourable occipito-anterior position, it has also descended through the pelvis and the fetal head is now 1 cm below the ischial spines (Fig. 14.3).

What is the plan now?

She has made good progress since she was commenced on oxytocin so labour should be allowed to continue normally. Continue oxytocin and reassess in 1 hour when it is expected that she will be fully dilated.

She is reassessed after another hour and is fully dilated; the CTG remains reassuring. The plan is to allow a further hour for descent of the fetal head and then allow active pushing to try to effect delivery. Mrs Timmons is happy with this plan.

You are called to see her 2 hours later when she has been pushing for 1 hour but the baby is not delivered (Box 14.3).

What factors are important in deciding what to do?

Maternal factors

- Is she well? Are her pulse, BP and temperature all normal?
- Is she comfortable with her epidural?
- Have the contractions remained good and is she pushing well?
- What does she want to do?

Box 14.3 Second stage of labour

NICE guidelines divide second stage into a passive and an active phase. Passive second stage of labour is defined as the finding of full dilatation of the cervix prior to or in the absence of involuntary expulsive contractions. The active second stage of labour commences at full dilatation when the baby is visible, there are expulsive contractions or other signs of full dilatation or active maternal effort is commenced in the absence of expulsive contractions (most commonly in the presence of epidural analgesia). Delivery will usually have occurred after 3 hours of active second stage in primigravidae and after 2 hours in parous women. To allow for delivery within these time frames it is recommended that referral regarding delay in second stage be made to medical staff after 2 hours in primigravidae and 1 hour in parous women.

Fetal factors

- Is the CTG reassuring?
- Is the vertex advancing?
- What are the findings on vaginal examination?

Mrs Timmons' observations are all normal, she is comfortable and she has been pushing well with good contractions but she is exhausted and keen for the baby to be delivered. The CTG shows a few early decelerations but is otherwise reassuring for second stage labour. The vertex was advancing and is just visible at the height of the contractions but has not moved much in the last 20 minutes.

There is no head palpable in the maternal abdomen and vaginal examination confirms that the cervix is fully dilated, the fetal head is in an occipito-anterior position and it is at the ischial spines plus 2 cm (Vx 0 + 2).

What will you tell her now?

The options are assisted vaginal delivery or to continue actively pushing to try for a spontaneous vertex delivery. It should be quite safe to deliver the baby with forceps or a ventouse in the delivery room if she wishes.

I Mrs Timmons agrees to assisted vaginal delivery.

What preparations are required to deliver the baby?

The anaesthetist should be called to top up her epidural for delivery. Mrs Timmons should have her legs placed in the lithotomy position. She should have the vulva cleaned and draped and the bladder should be emptied using an in-out catheter.

The forceps or ventouse should be applied with contractions and the position of the instrument needs to be checked. Traction should then be applied with contractions until the head is crowning and then a right medio-lateral episiotomy should be made to protect against third or fourth degree perineal tears.

Once the head is delivered the instrument should be removed to allow the head to reconstitute prior to delivery of the baby's body. Once the baby is delivered, the placenta can be delivered by continuous cord traction and the episiotomy repaired.

She delivers a male baby weighing 3.45 kg in good condition by ventouse. The episiotomy is repaired and her total estimated blood loss is 350 mL. Mrs Timmons is very happy with the outcome and will be fit for discharge in a day or two.

CASE REVIEW

Mrs Timmons, a 30-year-old primigravida with an uncomplicated antenatal course, was due to be induced at T + 10 days for the indication of postdates. She had a membrane sweep some days prior to the planned induction and actually went into labour spontaneously before her date for induction. Progress in labour was slow, and augmentation was performed initially with an artificial rupture of membranes and then an oxytocin infusion. She had morphine and followed by an epidural for pain relief. She reached full cervical dilatation and after allowing time for the head to descend, she commenced active pushing. However, delivery did not occur spontaneously and an instrumental delivery was successfully performed for the indication of maternal exhaustion and prolonged second stage.

Slow progress is common in labour, especially in primigravidas. Except in highly multiparous women or those

with previous caesarean sections when augmentation in labour is relatively contraindicated, labour can be augmented with oxytocin-like compounds to try to achieve a vaginal delivery providing there are no concerns about maternal or fetal well-being.

Augmenting labour in this way will reduce the numbers of caesarean sections performed for lack of progress. It is necessary to monitor both mother and baby carefully during this process as oxytocin augmentation carries some additional risks to both, over and above normal labour. Continuous fetal heart rate monitoring (CTG) is required because of the risk of fetal distress secondary to uterine hyperstimulation.

Assisted vaginal delivery, when performed by appropriately trained individuals, is safe and eliminates the significant risks associated with caesarean section when the fetal head is very low in the maternal pelvis.

KEY POINTS

- Induction of labour is offered to women with a low risk pregnancy at 41–42 weeks' gestation
- A membrane sweep should be offered to women at term to increase their chances of labouring spontaneously
- Bishop's score is generally used to determine the 'ripeness' or 'favorability' of the cervix, with scores of 6 or less suggesting an unfavourable cervix
- With an unfavourable cervix, induction of labour with vaginal prostaglandins is indicated
- Labour can be augmented when there is slow progress with an artificial rupture of membranes +/- oxytocin infusion. The frequency of uterine contractions and the fetal heart should be carefully monitored while on the oxytocin infusion
- Transcutaneous electrical nerve stimulation (TENS), Entonox, morphine and an epidural are all options for pain relief in labour
- Prior to performing an instrumental delivery, care must be taken to ascertain the position and station of the head vaginally, and to confirm that no more than one-fifth of the head is palpable abdominally. Where the head is in a position other than occipito-anterior (e.g. occipito-posterior or transverse), rotation to the occipito-anterior position can be performed either manually, with a ventouse or by rotational forceps and delivery completed

Further reading

NICE Clinical Guideline. *Intrapartum care: management and delivery of care to women in labour*. CG55, September 2007.

Case 15

A 37-year-old woman with heavy bleeding per vaginum following a forceps delivery

Mrs Brown, a 37-year-old para 5, delivered by rotational forceps, was noted to have steady heavy bleeding per vaginum while in the recovery, 1 hour 30 minutes after delivery. You have been called to assess her.

What differential diagnosis would you be considering as a cause for postpartum haemorrhage (PPH)?

- Uterine atony
- Traumatic cause – vaginal or cervical tear
- Retained placenta or placental tissue
- Disseminated intravascular coagulation
- Uterine rupture
- Uterine inversion

KEY POINT

Primary postpartum haemorrhage (PPH) is defined as loss of more than 500 mL blood from the genital tract within 24 hours of delivery. Secondary PPH is vaginal bleeding of more than 500 mL after 24 hours and up to 6 weeks after delivery. Massive PPH is blood loss of more than 1.5 L.

What specific questions would you ask?

- What has the total blood loss since delivery been?
- What oxytocics have been administered so far?
- What are her pulse and blood pressure (BP) recordings?

Mrs Brown had lost about 400 mL blood vaginally while in recovery, with a steady trickle continuing. The total blood loss since delivery is estimated to be 850 mL. Her pulse rate is 96 beats/minute and her BP is 121/78 mmHg. She had syntometrine in the third stage of labour.

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KEY POINT

Active management of the third stage of labour reduces the risk of atonic PPH. Ergometrine 500 µg with 5 units oxytocin is given by intramuscular injection immediately after the baby is delivered. Alternatively, 10 units oxytocin alone may be given by intramuscular injection if ergometrine is inappropriate as in cases of pre-eclampsia or cardiac disease.

What other relevant information would you wish to obtain?

- Was the placenta complete?
- What was the weight of the baby?
- Had labour been prolonged?

Mrs Brown has had five spontaneous vaginal deliveries in the past. There had been no complications in the previous pregnancies and deliveries.

In the current pregnancy there had been no problems antenatally, labour was induced at 40 weeks +12 days. Labour was augmented with oxytocin because of slow progress in the first stage and a rotational forceps delivery was performed in theatre for a prolonged second stage and occipito-transverse fetal position. The baby weighed 4.17 kg. Placenta and membranes were delivered completely and the episiotomy was sutured in layers. The total blood loss at the end of the procedure was 450 mL.

What features would you look for in your examination?

- Signs of pallor, pulse and BP
- On abdominal examination – level of the uterus in relation to umbilicus, tone of uterus (atonic or contracted)
- Assessment of the vaginal bleeding