# **UNIT THREE PART ONE: LABOUR AND PUERPERIUM**

You have successfully completed Units One and Two of this module on Reproductive Health. In the previous units, you learnt about obstetric anatomy, normal pregnancy, antenatal care, obstetric pharmacology and breastfeeding. As you learned, a well-managed pregnancy is likely to have a very happy ending. This unit will take you through labour, puerperium and the neonate.

The unit is divided into two parts. Part One deals with normal labour, the neonate and puerperium. In Part Two, we will discuss abnormal pregnancy and abnormal labour.

This unit is composed of two sections:

Section One: Normal Labour
Section Two: The Neonate

**Unit Objectives**

By the end of this unit you will be able to:

* Describe the process of normal labour
* Describe the management of mother during puerperium
* Describe the management of the newborn during
neonatal period
* Identify neonatal complications, their management
and prevention
* Apply the knowledge acquired in the management of a woman during labour and puerperium

**SECTION 1: NORMAL LABOUR**

**Introduction**

Your role as a midwife demands clinical expertise in supervising, caring for and supporting the pregnant mother during pre-pregnancy, pregnancy, labour and puerperium. You should be able to conduct deliveries on your own, and be ready to intervene when complications arise. It is also your responsibility to recognise and act promptly should you be presented with an abnormal condition, for example: mal-presentation, obstructed labour, or obstetric and neonatal emergencies.

In order to recognise and deal with complications of pregnancy, delivery, and the puerperium, you as a health worker must first be thoroughly familiar with the characteristics of normal pregnancy, delivery and puerperium. As you may remember, you have already discussed normal pregnancy in the previous Unit. In this Unit, you will review the features of normal and abnormal labour and consider how each stage of labour is managed. You will also examine the normal puerperium and review methods of monitoring a mother for post-delivery complications.

Do you know that a mother, who is psychologically well prepared during pre-natal care, will go through labour and delivery with ease? Research has shown that if a woman in labour has confidence in her caregiver she will experience a considerably lower level of labour pains. Professionalism, calmness and a ‘matter-of-fact’ manner on the part of the caregiver is a greater tranquilliser to the mother who is in pain than medicine (Leeder: 1994).

It goes without saying, therefore, that a midwife’s behaviour and attitude towards a mother in labour makes the difference between painful and less-painful labour. A relaxed mother will usually have a shorter period of labour than a tense mother.

Before we proceed, let us look at the objectives of this section.

**Objectives**

By the end of this unit you will be able to:

* Define labour
* Explain the onset of labour
* Identify the three stages of labour
* Describe the physiological changes that occur during labour
* Describe the management of normal labour

**Labour**

**The word labour is commonly used by both medical and non-medical people, but what does this term mean to you as
a midwife?**

Labour is described as the process whereby the foetus, placenta and membranes are expelled through the birth canal after 28 weeks of gestation. Labour, can be either normal or abnormal.

Normal labour has several important characteristics, which you should always remember.

These are:

* Duration - completed within 18 hours
* Occurs at term between 38 and 40 weeks
* Is spontaneous
* The foetus presents by the vertex
* Has no complications to either mother or baby
* The newborn child requires minimal or no resuscitation

**The Onset of Labour**

A midwife should ensure women have sufficient information to assist them to recognise the onset of true labour. A pregnant woman would be best placed to diagnos the onset of labour herself.

Some young women, especially the primigravidae (those pregnant for the first time), may fail to recognise true labour. It is important that you help them differentiate between false and true labour signs. The contractions of true labour are regular and intense. In false labour, the contractions are sporadic (Braxton-Hicks contractions). False contractions occur during the last weeks of pregnancy. The following table outlines some factors that can help to differentiate true and false labour.

The presence of the following signs and symptoms will give evidence that the mother is in labour:

* Contractions of the uterus, which are increasingly strong, painful and regular
* The cervix is taken up into the lower uterine segment causing dilatation of the cervix
* There is a mucoid blood stained discharge, which is called show
* Sometimes there is rupture of membranes with drainage of liquor amnii (amniotic fluid)

The causes that trigger the onset of labour are not known. However, many theories have been offered which indicate that both hormonal and mechanical factors play a big part. You will now study each of these factors in turn.

**The Contrast Between True Labour and False Labour**

|  |  |  |
| --- | --- | --- |
| **Factors** | **True Labour** | **False Labour** |
| Contractions | Regularly spaced | Irregularly spaced |
| Interval between contractions | Gradually shortens | Remains long |
| Intensity of contractions | Gradually increases | Stays the same |
| Location of pain | Back and abdomen | Mostly lower abdomen |
| Effect of analgesics | Do not abolish the pain | Often abolish the pain |
| Cervical changes | Progressive effacement and dilatation | No changes |

**Hormonal Factors**

It is believed that close to term progesterone levels in the body fall, while at the same time levels of oestrogen (which is responsible for sensitising the uterine muscles) rise. The fall in progesterone levels is important because it has effect on muscle contractions. The rise in oestrogen levels meanwhile triggers the release of oxytocin, which causes uterine contractions. The foetal hypothalamus is believed to produce releasing factors, which stimulate the anterior pituitary gland to produce adrenocorticotrophic hormone (ACTH). ACTH stimulates the foetal adrenal glands to secrete cortisol, which causes relative levels of placental hormones to rise. These cause further uterine contractions.

**Mechanical Factors**

Uterine activity can also result from the mechanical stimulation of the uterus and cervix. This may be due to over stretching, as in the case of multiple pregnancy and polyhydromnios, or pressure from the presenting part, when it is well applied to the cervix.

It appears that there is a combination of hormonal (from both mother and foetus) and mechanical factors that set labour in motion.

**Pre-Labour or Premonitory Signs of Labour**
This is the period two to three weeks prior to the onset of labour when a number of changes take place. You will now look at these changes in greater detail.

**Lightening**

Two to three weeks before labour, the lower uterine segment expands allowing the foetal head to sink deep. The descent of the head and the body of the baby gives space to the lungs, heart and stomach, which enables these organs to function easily.

The symphysis pubis widens and the pelvic floor softens and becomes more relaxed, allowing further descent of the uterus into the pelvis.

**Frequency of Micturition**

The descent of the foetal head increases pressure within the pelvis. This limits the capacity of the bladder, which can cause irritation. The laxity of the pelvic floor muscles gives rise to poor sphincter control causing a degree of stress incontinence. This pressure results in the congestion of circulation to the lower limbs. Additionally the relaxation of the pelvic joint may give rise
to backache.

**Taking up of Cervix**

The cervix is taken up gradually and merges into the lower uterine segment. Shortening of cervix is looked for when labour needs to be induced.

**Contractions**

The contractions of the uterus are coordinated by two pacemakers in the region of the cornua. These are located where the fallopian tubes join the uterine body. The muscle contractions start at the top corner of the uterus, spread to the fundus, and then downward. During normal pregnancy, the uterus contracts intermittently but the contractions are not strong enough to overcome the resistance of a normal cervix and do not lead to its dilation. The contractions of pregnancy become more frequent towards full term and get more painfuland noticeable.
A multipara may have such 'false pains' for some days before the onset of true labour. They may come to hospital too early thinking they are in established labour. This is what is referred to as 'false labour'.

You will now look at uterine action and how contractions interact with the cervix.

**Uterine Action**

By the end of pregnancy, the uterus is divided into two anatomically distinct segments, known as the upper and the lower uterine segments.

The upper uterine segment is a thick muscular, contractile area from where the contractions begin. The longitudinal fibres retract, pulling on the lower segment and causing it to stretch, pushing the head down.

The lower uterine segment is thinner and develops from the isthmus of the uterus about eight to ten centimetres in length and is prepared for distension and/or dilatation. The lower segment stretches when being pulled by the longitudinal fibres. The force applied by the descending head or breech also aids the stretching.

The retraction ring which is an imaginary ridge, forms between the upper and the lower uterine segment. It is present in every labour and is perfectly normal as long as it is not marked enough to be visible above the symphysis pubis.

**Fundal Dominance**

During a contraction the uterus feels hard to touch. At the beginning of the process, contractions are painless and involuntary, and are controlled by the nervous system under the influence
of endocrine hormones.

The contraction starts at the upper part of fundus, spreading across, and by the time they reach the lower fundus, they last longer and are very intense. The peak of the contraction is reached simultaneously over the whole uterus and fades from all parts together. This pattern allows the cervix to dilate and the contracting fundus to expel the foetus.

**Polarity**

Polarity describes the neuromuscular harmony between the two poles or segments of the uterus throughout labour. The upper pole contracts strongly and retracts to expel the foetus. The lower pole contracts slightly and dilates to allow expulsion of the foetus to take place.

**Contraction and Retraction**

When labour starts, approximately 280 days from the first day of the last menstrual period, the contractions change in character. They become regular and more painful. Labour contractions differ from those of pregnancy in that they are followed by retraction. This is characteristic of uterine muscle in labour.
The contracted muscle does not return to its original length when the contraction passes off. Each succeeding contraction leads to further shortening of the muscle fibres so that the uterine cavity becomes smaller and smaller. This is what makes the cervix dilate. This process is illustrated in the figure below.



When talking about contractions, you as a midwife are concerned with three factors, namely the strength, the duration and the frequency of the contraction.

When you talk of the strength of a contraction, you identify it as one of three categories: weak, fair or fairly strong, and strong. The strength of a contraction is measured according to the time it has taken. Thus, a contraction which takes 10 to 30 seconds is said to be weak, one that takes 30 to 40 is said to be fair or fairly strong and one that lasts for 40 to 60 seconds is said to be strong.

The duration refers to the time taken by a contraction, for example a weak contraction lasts for 10 to 30 seconds.

Frequency, on the other hand refers to the number of intervals between one contraction and the next. If a mother has one contraction after every 45 minutes, the frequency is written as 1:45.

**The Shortening and Dilation of The Cervix**
Before labour begins, the cervix of a primagravida is a thick hard cone which protrudes into the vagina. The canal is at least one inch long. When labour begins the strongly contracting upper segment of the uterus starts retracting and getting shorter, while the thinner lower segment of the uterus gets pulled away from the presenting part. This stretches the lower segment. The latter, in turn pulls the internal Os. This dragging away of the internal Os from the presenting part starts dilating the upper part of the cervical canal. This goes on until the canal is shorter and shorter and finally there is no canal at all. The canal becomes part of the uterine cavity with only the undilated external Os and the thinly stretched cervix separating this cavity from the vagina. When this happens, we say the cervix has been 'effaced' or 'taken up'

Click the links to reveal the stages of the effacement of the cervix:

**Cervical canal before effacement**

**Partial effacement**

**Effacement almost complete**

**Effacement fully complete**



**Partial effacement**

**Effacement almost complete**

**Effacement fully complete**





**Effacement almost complete**

**Effacement fully complete**







**Effacement fully complete**









In a primigravida the cervix usually becomes almost fully effaced before any dilation takes place, while in multiparous women the two processes take place together. The cervix of a multipara might be already effaced and be dilated enough to admit a finger up to the internal Os even before labour starts. These signs of labour are assessed by doing a vaginal examination, though with experience, you can also get a good idea by doing a rectal examination.

 The way you guide a mother      has a great influence on the                 progress of her labour**.**

**The Show**

Throughout pregnancy the cervical canal is sealed by a plug of mucus known as an operculum. Together with the intact membranes this prevents organisms ascending into the uterine cavity.

When labour starts, the internal Os is pulled away from the foetal membranes and the canal is opened up. This releases the mucous plug which oozes out of the vagina mixed with a little blood. This is called the 'show'.

**The Stages of Labour**

Labour is divided into four stages, although in real practice, the process is a continuous one and change from one stage to the other may not be clearly obvious. The four stages of labour are known as First stage, Second stage, Third stage and Fourth stage.

Each stage will now be covered in detail.

**The First Stage**

This is known as the stage of cervical dilatation. This stage begins when regular, painful uterine contractions start and is detected clinically by the thinning and effacement of the cervix, followed by its dilatation. The normally thick cervix becomes thinned out and stretched over the presenting part. The first stage is completed when the cervix is fully dilated and the presenting part starts being expelled. This stage has two phases, known as the latent and the active phase.

The contractions of the uterus dilate the cervix. The dilatation of the internal Os causes the separation of the chorion from the decidua closest to it. A small bag of membranes is formed and is forced into the internal Os by the intrauterine pressure. At the beginning of each contraction, a little more amniotic fluid is forced into the bag of membranes. The head of the foetus then comes down like a ball valve and separates the amniotic fluid above it from that in the bag. The bag of membranes may remain intact until nearly the end of the first stage. However, even if the membranes rupture early the cervix will still become dilated as it is drawn up over the presenting part by the retraction of the upper segment.

During the first stage, the foetus does not move downwards to any great degree. When a certain amount of fluid has left the uterus after the membranes have ruptured, a new form of pressure comes into play, namely foetal axis pressure. The upper pole of the foetus, normally the breech, is pressed on by the fundus of the uterus, while the lower pole is pressed down onto the lower segment and cervix. Should the membranes rupture early, foetal axis pressure will operate at an early stage. In modern practice, the membranes are often deliberately ruptured during labour because this is believed to encourage more efficient uterine action and shorten labour. You should be cautious carrying out this procedure in this
era of HIV.

The duration of the latent phase of labour need not be defined too accurately. Dilation of the cervix from 0 to 3cm can take six hours, but slower progress may be normal and is perfectly acceptable provided that the woman is comfortable and in no way distressed. Between 3 and 10cm dilatation (that is in the active phase of labour) the cervix should dilate at a rate of about 1 cm per hour, giving a theoretical duration of seven hours for this phase of labour in both primiparous and multiparous women. During the early part of the latent phase the pains may not be very severe but towards the end of the active phase they are often very distressing, constituting the most painful part of labour. Vomiting and reflex shivering are common at the end of the active phase of the first stage of labour.

By now the membranes have ruptured. If the membranes remain intact when the cervix is fully dilated, the onset of the expulsive stage may be delayed. This is because the cervix does not receive the pressure of the head, which helps to stimulate the uterus to increase its activity. If the membranes remain intact after full dilatation, they should be ruptured with toothed forceps or a sterile plastic amnihook during a contraction.

**Second Stage**

This starts with the full dilatation of the cervix and
the expulsion of the presenting part and finishes
with the complete delivery of the baby. As you know,
there may be very little descent of the foetus during
the first stage. However, in the second stage, the
resistance offered by the lower uterine segment and
the cervix has been overcome and the presenting
part can be pushed down onto the pelvic floor.
The resistance of the pelvic floor then has to be
overcome by uterine contractions, aided by the
action of the voluntary muscles of the abdominal
wall and the diaphragm.

In the absence of an effective epidural block, full dilatation of the cervix is accompanied by a bearing down sensation during contractions and women are usually encouraged to push. As the contraction comes on, the woman takes a deep breath, then holds it and subsequently bears down with all the force of her abdominal muscles. These partly voluntary, partly reflex expulsive efforts place the foetus under additional stress and pushing should, therefore, not be allowed to continue for more than one hour. If delivery is not imminent, assistance in the form of Ventouse extraction, forceps delivery or even a Caesarean section may be necessary.

**Third Stage**

This stage commences immediately after the birth of the baby. It includes the delivery of the placenta and membranes as well as the control of bleeding. At this stage the uterus contracts down to follow the body of the foetus as it is being born. As the cavity of the uterus becomes smaller, the area of the placental site is diminished. The placenta is then cut off from the spongy layer of the decidua basalis. Further uterine contractions expel the placenta from the upper segment into the lower segment and through the vaginal vault. This process, whereby the placenta leaves the upper segment to the lower segment and through the vagina, is referred to as separation and descent.

**Fourth Stage**

This is the period from the delivery of placenta and membranes to the end of the first hour postpartum. The uterus is firm at level of two fingers breadth above the umbilicus. Restoration of physiological stability is established. During this period myometrial contractions and retraction, accompanied by vessel thrombosis, operate effectively to control bleeding from the placenta site. Failure of this mechanism could result in excessive blood loss (postpartum haemorrhage (PPH)) that could be life threatening. The mother should be closely observed for haemorrhage, urine retention or hypotension. The mother and child relationship should be initiated and encouraged, as it has an effect to the subsequent quality of their relationship and bonding.

**Physiological Changes in Labour**

You will continue with the study of the four stages of labour, paying particular attention to the physiological and mechanical changes that are involved.

**Physiological Changes in the First Stage of Labour**
This is the stage of dilatation of the cervix. On average, it lasts eight to twelve hours in a primigravida and six to eight hours in a multipara. It should not go beyond 14 hours in either. This stage is characterised by the uterus doing an immense amount of muscular work in the form of contracting and relaxing. Contractions are involuntary in that they do not come on through voluntary effort of the woman nor can they be voluntarily stopped. They are peristaltic and regular.

Contractions at the start of labour come every 10 to 15 minutes and last between 30 to 45 seconds. They increase in frequency and strength as labour progresses until they are separated by a minute or two. Towards the end of the first stage they last for one minute. The relaxation phase during which the muscles remain retracted also shortens.

Each contraction begins with a gradual build-up towards a peak of intensity. This is followed by a relaxation phase. During the relaxation phase, the muscle recovers and gets ready for the next contraction. This relaxation phase is important to both the foetus and the mother during the first and second stages of labour.

During a contraction the circulation through the uterine wall is reduced and the foetal heart rate is slowed but regains its normal rate as soon as the contraction has passed. If there is increasing foetal tachycardia between contractions or if the bradycardia is prolonged after each contraction, then foetal distress sets in. If the uterus contracts continuously the foetus dies from lack of
oxygen (anoxia).

The mother is also able to relax during the relaxation phase. However, if the uterus contracts continuously, the mother also gets very exhausted because the uterus uses up a lot of energy during contractions. If this goes on for too long, as is the case during prolonged labour, her energy stores become depleted and maternal distress sets in.

As the mother will not be able to eat or absorb much by mouth, she should be given supplementary carbohydrates intravenously. In a normal first stage, oral fluids to which additional sugar has been added are sufficient.

As the uterus contracts and retracts more and more, the upper muscular part becomes progressively thicker. The less muscular lower segment is pulled upwards over the presenting part and becomes thinner. The cervix becomes effaced. The effacement is followed or accompanied by progressive dilation of the cervix until full dilatation when the uterus becomes a continuous cavity with
the vagina.

A fully dilated cervix is 10 cm dilated. During the first stage the uterine cavity gets progressively smaller but the foetus moves down very little. The presenting part helps in dilating the cervix. During this stage the woman should not use her voluntary efforts to bear down as this will exhaust her unnecessarily and may cause oedema of the cervix and/or foetal distress.

**Management of Normal Labour in the Admission Room**

The proper management of labour is essential, if you are to avoid problems or to detect them early when they occur. The patient will come to you believing she is in labour. You should be able to assess and decide whether she is in labour or not. The patient may be in early labour, but often she might arrive in the late second or even third stage.

If you are sure she is not in labour send her home to wait. If she is in labour, keep her in the ward and continue monitoring her progress. Danger, especially to the foetus, can arise suddenly
and unexpectedly

 No labour should be assumed normal until the fourt  stage has successfully concluded.

**Admission**

**When you admit a mother in the first stage of labour, what activities should you carry out?**

You would take the patient's personal history, conduct a physical examination and carry out tests/investigations.

On admission, you should check the woman's antenatal card for any identified risk factors. It will also help you to see if there were any abnormalities during her pregnancy. The records will also have information on her medical and obstetric history. If she has not been attending an antenatal clinic, this is the time to take detailed history as covered in unit two of this module.

Once this information has been established, find out more about the present labour. Take her history, do an examination and carry out the necessary investigations to establish the stage of labour and the state of the mother and the foetus. The steps you should take will be covered on the following pages.

**History Taking**

A detailed personal history should have been taken during pre-natal care. However, if this has not been done, this is a good time to get it recorded. Make sure the names are correctly spelled because this can eventually result in problems when registering the baby. Review the last day of menstruation to calculate the expected date of delivery. Check her age, parity and contraceptive history. Assuming that a detailed personal history had been taken during pre-natal care, you should now take information about the following:

* Any presence of show
* Presence or absence of contractions
* Onset of contractions and
their characteristics
* Activity of the foetus
* Rupture of the membranes
* Any treatment given
* Food taken in the last four hours

**After taking the personal history, there are some observations that you should make.**

**Can you think what these might be?**

Assess the general condition and progress of labour in the mother, as well as vital signs and blood pressure. Test urine for protein, glucose and ketones and report any abnormalities.

After taking the history and observing the mother you now need to take carry out a thorough physical and vaginal examination.

**Head to Toe Physical Examination**

You should start by explaining to the mother that you want to examine her. The health care provider should appreciate the psychological aspect of a woman in labour, respect her feelings and the need for company or privacy. They should support the woman and her partner or family during labour, birth and the immediate postpartum period. Failure to do this has contributed to many women delivering at home, a place where they are appreciated but without an assured clean and
safe delivery.

**Can you remember how to examine the mother systematically?**

**How to Examine the Mother Systematically**When examining her, check on her general condition. Check if she is exhausted, anaemic, in great pain, dehydrated, or with generalised oedema. You should also check her height. This will enable you to exclude any risk factors.

You should also take her vital measurements including her blood pressure, pulse, temperature, and respiratory rate. Conduct an abdominal examination checking for:

* Height of fundus
* Over-distension of the abdomen, scars or other abnormality
* Over-distension of bladder
* Possible presence of twins or multiple pregnancy
* Contractions - frequency, length, type and strength
* Lie of foetus - this is the relation of the long axis of the foetus to the long axis of the uterus (it can be longitudinal, oblique or transverse)
* Rate and rhythm of the foetal heart

You should also check on the presentation. Which part of the foetus is at the pelvic brim? Is it a head (cephalic) or the buttocks (breech)? Check the attitude; whether the head is well flexed or extended. A well-flexed head presents the smallest diameter and delivers easily. A deflexed head presents a larger diameter and causes delayed or obstructed labour.

Finally check the position of the relation of the foetal parts to the mother. This is confirmed through a vaginal examination by checking the position of the foetal occiput relative to the mother. The position of the foetal spine is the same as that of the occiput.

Refer to unit two for a more detailed description of this systematic examination. After a thorough head-to-toe examination you should perform a vaginal examination.

**Vaginal Examination in Labour**

This is an important examination as it can give you a lot of information, which you might not get from an abdominal examination. On the other hand, if you do it often it is uncomfortable for the woman and you might introduce an infection into the uterine cavity, especially if the membranes have ruptured. To avoid infections, you should scrub and put on gloves as you would for any other sterile procedure. Then thoroughly swab the perineum of the woman with an antiseptic solution such as Savlon or Hibitane, or boiled water if these are not available.

A vaginal examination is necessary to:

* Check if the patient is in labour and what stage of labour
(this is done on admission of the patient)
* Assess the progress of labour
(this is done every four hours during the first stage of labour)
* The degree of effacement and dilatation of the cervix and the station of the head relative to the ischial spines will give you the necessary information
* Check that there is no prolapse of the cord when the membranes rupture

Remember: Do not do a vaginal examination if the mother has an ante-partuhaemorrhage, because if there is placenta praevia, severe haemorrhage will occur.

A vaginal examination is contraindicated if the mother has ante-partum haemorrhage unless it is performed in an operating theatre. In case of pre-eclampsia, the procedure should be performed only after
giving a sedative.

**Vaginal Examination**

* Arrange your vaginal examination pack with cheatle forceps and pour solution.
* Scrub your hands for at least five minutes.
* Glove yourself methodically to prevent contamination.
* Explain the semi-lithotomy position that should be maintained during the examination
to the mother.
* Swab the vulva and drop the swab methodically (used swabs should be decontaminated in jik before disposal).
* Ask the mother to breathe in and out while you perform digital examination.
* With the right hand, gently insert the fingers obliquely inside the vagina with the thumb, facing the symphysis pubis. Your left hand should be on the mother’s abdomen.
* The fingers to be introduced are held on a higher level than the vaginal orifice during insertion to avoid contact with the anus. Fingers should not be withdrawn until the required information has been obtained.
* The fingers are directed along the anterior wall of the vagina. The wall should feel soft and dilatable while the vagina should be warm and moist.
* The fingers are then directed upwards to the position of the cervical Os.
* At times the Os is not felt readily, the fingers should then be directed backwards
and upwards.

While performing a vaginal  examination, you should observe the mother’s non-verbal communication.

[The Vagina](file:///C%3A%5CJEREMY%5CModule%202%20Reproductive%20Health%5CUnit%203%20Part%201%20Labour%2C%20Neonate%20and%20Puerperium%5Cpages%5Cpg20051031035115167.html)

**The Cervix**

* Is it bruised or oedematous?
* Is it firm or soft?
* Is it taking up, that is effaced?
* How much is the Os dilated?

Do not insert more than two fingers in the cervical Os.

**The Membranes**

After deciding the state of the cervical Os, check for presence of membranes. Note the following:

* Are they ruptured or intact?
* If intact are they bulging?

**The Cord**

* Is it presenting or prolapsed?
* If prolapsed is it pulsating?

**The Presenting Part**

Next, determine the level of the presenting part. You should ask the following questions:

* Is it fitting the pelvis and cervix well?
* If it is the head, can you feel a suture or fontanel?  Which one?
* Is it well flexed?
* If the head is at the brim it, will not be felt vaginally unless you push it down with your left hand which is on the mother's abdomen
* If the head has just engaged, it can be touched or just be tipped
* If the head is deeply engaged, the head is felt at the level of the ischial spines

**The Vagina**

* Is it firm or lax?
* Is it moist and cool or dry and hot?
In prolonged labour, when the woman is in maternal distress and is dehydrated, the vagina feels hot and dry.
* Is it bruised?

**The Cervix**

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* Is it firm or soft?
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     While performing a vaginal
     examination, you should observethe
     mother’s non-verbal communication.

**The Presenting Part**

The station or level of the presenting part is the level to which the presenting part has descended in the pelvis. The level of the presenting part is expressed in relation to the easily palpable ischial spines. You can also state if it is above the brim, at the brim, in the cavity or at the outlet.

Remember that if the presenting part is at the brim then it is at station -5. As the head descends down in to the cavity of the pelvis it decreases from -5, -4, -3, -2, -1. By the time it is at the ischial spines, it is said to be at 'zero station'. It reappears from the pelvic outlet into the perineum, which is classified as +1, +2, +3, and +4. By the time it is seen at the perineum it is at station +5.

**The Station of the Foetal Head**



Observe the position of the presenting part.  This is the position of the foetal parts in relation to      the parts of the pelvis. A point on the foetus, such as  the occiput in a vertex presentation, is usuall  used as a reference point.

To get the position right, you have to palpate the sutures and fontanel to determine their position relative to the pelvis. This can be confirmed by abdominal examination.

In a breech or a face presentation, the reference points on the foetus are the sacrum and the chin or mentum respectively. A soft mass is felt. Foetal genital parts or the anus may be felt with the examining finger. The position is determined by the position of the sacrum in relation to the side of the mother's pelvis. The left side is expressed as left sacro-anterior (LSA) or the right side, which is known as right sacro-anterior (RSA).

In a vertex presentation, when the occiput is persistently posterior, this causes prolonged labour. In a cephalic presentation, you will feel the hard head sutures and fontanel. Determine whether it is the anterior or posterior fontanel by its shape. If it is the posterior fontanel, then the position is occipito-anterior. If it is the anterior fontanel then the position is occipital-posterior.

Face presentation is important as the chin is the facial landmark. Note how the position of the chin is related to the mother's right thigh (RT) or left thigh (LT), side of the pelvis and the anterior and posterior position expressed as RMP (right mento posterior). You should also note the brow or sinciput presentation on vaginal examination (VE). You should be able to feel the brow, frontal sutures and possibly the posterior fontanel. The extension is usually a temporary presentation, which converts to face or occiput presentation during labour. However, at times it persists and in such instances, a caesarean section is usually called for.

**Illustration of baby in mothers womb**

**showingnormal presentation**



Note whether the long axis of the body of the foetus is perpendicular to that of the body of the mother. A left acromiodorso posterior (LADP) indicates that the baby’s lower shoulder is to the mother’s left and its back is towards her back. A compound presentation is when the hand or occasionally a foot lies alongside the head.

**The Pelvis**

Next check for moulding or caput succedaneum.

**What is moulding?**

Moulding is when the diameters of the foetal skull are reduced in size. During labour the bones of the foetal skull tend to overlap at the sutures so that the head can easily pass through the birth canal. During a vaginal examination this is how you should check for moulding:

* In cephalic presentation, run the finger on the head feeling for the sutures
* Judge the degree of moulding by feeling the amount of overlapping of skull bones
* Check for caput

The pelvis is assessed to check if it is adequate (see unit two).
The following factors should be checked:

* Is it roomy?
* Are the sidewalls well spaced?
* Can you touch the promontory of the sacrum easily?
* Is the pubic arch wide enough?
* After checking for moulding, direct the fingers behind the head and make an effort to reach the sacro-promontory. The palm of the hand should be facing upwards. Promontory of the sacrum should not be reached.
* With the palm facing downwards run the two fingers down along the hollow of the sacrum and determine the shape. The hollow of the sacrum should be curved.
* The two fingers are then moved to where the ischial spines are located on either side of the pelvis. Run the finger along this area to determine whether or not the ischial spines are unduly prominent. Or else you can stretch your fingers to see if the spines are prominent. The ischial spines should not be prominent.
* As you move the fingers with the palm facing upward, on reaching the pubic arch check if it can accommodate two fingers. The apex usually should accommodate two fingers.
* Make a fist facing downwards then place the fist between the ischial tuberosities. The Intertuberosity should accommodate four knuckles. Check if it does.

**The Discharge**

Withdraw the fingers and check if there is:

* Any vaginal discharge
* Any smell
* Any liquor or meconium staining
* Any bleeding

The following steps should be taken as part of your investigation:

* Take a urine sample for albumin and sugar
* Check for acetone, especially if the patient is in prolonged labour
* Take blood for haemoglobin and cross matching if the patient is anaemic or might need an operation

By this time you will have gathered enough information as to the stage of labour and whether the patient belongs to the ‘at risk’ category and needs referral or not.

**Management of First Stage of Labour**

When managing the first stage of labour, you should keep to the following procedure, making sure you record your findings in
a partogram:

* Admit the patient to the waiting room, reassure her and introduce her to other patients
* Reassure her and explain what is being done at every stage
* Give her an enema only if she is in early labour
(this will reduce the risk of faecal soiling and infection
at delivery)
* The patient may have a warm bath and change into
a hospital gown
* Encourage her to walk about and empty her
bladder frequently
* Give her plenty of fluids with sugar or glucose as she has to work hard and needs the energy
* Do not allow any solid foods as the stomach takes a long time to empty in labour

Should she need an operation and anaesthesia, the emptying of the stomach will be difficult and she might vomit and inhale the vomit.
If she is in much pain and the delivery is still far off, give her
a sedative.

Check the following regularly:

* Check the foetal heart rate half hourly or more often if you suspect distress
* Check uterine contractions (strength, type, frequency and duration) as well as maternal pulse, BP and temperature
* Check the urine output and check for albumin and acetone if indicated every two hours
* Every four hours check the level of the presenting part and the degree of dilatation of the cervix
* Constantly check the woman's reaction to labour and be aware of her needs, especially for pain relief. You can repeat pethidine 50 mg IM if cervical dilatation is still 5 cm or less. Do not give more pethidine if delivery is imminent as it depresses the baby's respiration
* Towards the end of the first stage, she can rest on her side, or in any position she finds comfortable, for example, squatting
* Discourage pushing or bearing down before the cervix is fully dilated
* Early pushing only exhausts the woman and will cause oedema of the cervix and interfere with normal dilatation
* If the bladder is full and she cannot empty it on her own, catheterise her using
aseptic technique
* When the membranes rupture, usually at the end of the first stage, check the colour of the liquor for meconium staining, the foetal heart rate and do a vaginal examination to exclude prolapse of the cord

**Write down the observations you are supposed to record in the partogram?**

* Vital signs
* Blood pressure
* Details of vaginal examination
* Contraction strength and number
of contractions in ten minutes
* Fluid balance
* Urinalysis
* Drugs administered

When observing the contractions, you should note the following:

* Uterine contraction duration, strength
and frequency
* In early labour the contractions are mild, lasting 20 to 30 seconds and
are infrequent
* As labour progresses, the contractions become stronger, lasting 40 to 50 seconds and are about three contractions per
ten minutes
* The uterus should always relax
between contractions
* The cervix dilates progressively from 4cm at a rate of approximately 1cm and 1.5cm hourly in primigravida and
multigravida respectively
* The descent of the presenting part can be noted by abdominal palpation or vaginal examination. Avoid unnecessary
vaginal examination

               Remember to allay the mother's                fears and reassure her throughout                your examination and indeed                throughout labour. A mother in                labour needs to feel loved, cared                for and to be treated with dignity.

**Prevention of Infection**

To prepare for clean delivery you should:

* Give an enema or suppositories
* Avoid shaving the pubic hair, given current HIV/AIDS prevalence rates
* Allow the mother to have bath whenever she wishes as it is soothing during labour
* Practice aseptic techniques through labour
* Ensure a clean environment within and around the ward

After conducting a thorough examination of the mother and recording your observations in the partogram, there are a number of things you can do to make her feel comfortable during her labour i.e. allow her to change position and move around, use back massage, have a chosen companion with her during labour, allow her to take fluids as required and return the placenta to parents if so desired and directed by the culture. However do not forget to check on the foetus especially if you suspect foetal distress.

Write down any signs of foetal distress that you can think of.

 **If you diagnose foetal distress what steps might you carry out?**

**The Second Stage of Labour**

As mentioned earlier, the second stage of labour begins with full dilatation of the cervix. It is the stage of descent and expulsion of the baby. It normally lasts from one to two hours on average in primigravida, and half an hour in multipara. If this stage goes beyond two hours it is considered abnormal. The contractions become stronger, lasting 40 to 60 seconds, with a one-minute
recovery interval.

The retracted and contracting uterus pushes the foetus down into the pelvis. During the relaxation phase the pelvic floor pushes the presenting part up again but the retracted uterus does not allow all the progress achieved to be lost. Progressively the presenting part moves down until it reaches the pelvic floor. The presence of a foreign body in the vagina makes the woman want to bear down even against her will. The voluntary muscles of her abdomen and diaphragm help the uterus in the pushing. As a contraction comes the mother should be instructed to take in a deep breath, hold it and then bear down.

These expulsive efforts are partially voluntary. The vagina widens to accommodate the baby. It is now a continuous cavity with the uterus. The presenting part may push out faeces from the rectum as it goes through the vagina. When the presenting part reaches the pelvic floor it starts stretching the vulva, causing much pain, especially in the primigravida. For some time it keeps popping out during a contraction and receding back during the relaxation phase. After some time it can no longer slip back. This is known as 'crowning'. The head will have passed through the bony outlet of the pelvis. The perineum becomes stretched and paper-thin and it is at this stage that an episiotomy should be performed if necessary. The next contraction normally expels the presenting part.

**Mechanism of the Second Stage of Labour**

The mechanism of labour refers to a series of movements the foetus has to make to pass through the birth canal.

**Lie**
Lie means the relation of the foetus to the long axis of the uterus. It may be longitudinal, oblique or transverse.

**Presentation**

The presenting part of the foetus is that part which is in or over the pelvic brim. Its position is examined in relation to the cervix. It could be vertex, face, or a breech. However, 95% of all presentations are cephalic, and the presenting part is usually the vertex.

**Position**

The position describes the relationship of a selected part of the foetus to the maternal pelvis. For example, in a vertex presentation the selected part is the occiput. With face presentation it is the chin, and with a breech
presentation, it is the sacrum.

**Attitude**

he pelvis is a curved passage with different diameters at the inlet, mid-cavity and outlet as you saw in unit two. The foetus, therefore, has to adapt itself to the shape, size, and curve of the pelvis at different levels as it descends.

To be able to manage labour skilfully, you need to understand the natural movements made by the baby so that, when assisting in delivery, you can follow the movements rather than oppose them.

The factors, which influence the mechanism of labour, are known as the three 'Ps': power, passage, and passenger.

**Power**The stronger the contraction in a well prepared mother, the better the outcome of labour.

**Passage**The size, shape and resistance of the birth canal including the bony pelvis, cervix, vagina and pelvic floor may speed up or slow down the process of delivery. A gynaecoid pelvis and a fully dilated cervix speed up the process.

**Passenger**

This refers to the size, lie and presentation of the foetus, as well as the placenta and membranes. For the foetus, a vertex presentation makes labour shorter as the presenting part fits well on the cervical Os and stimulates the cervix to dilate faster.

It is important to remember that descent occurs throughout and as mentioned earlier, ninety five per cent of all presentations are cephalic, and the presenting part is usually the vertex. This areas boundaries include the bregma or the anterior fontanel, the perietal eminences and the posterior fontanel. The presenting diameter is, therefore, the smallest - 9.5cm. In order to present with the smallest diameter, the head must be well flexed on the neck with the chin touching the chest. As the leading part meets resistance of the pelvic floor it rotates 1/8th forwards until it comes under the symphysis pubis.

The mechanism of labour in a cephalic vertex presentation includes the following steps:

* Engagement and descent
* Internal rotation
* Birth by extension of the head
* Restitution and external rotation

You will now look at each of these steps in detail.

**Engagement and Descent**

Engagement is the descent of the presenting diameter through the pelvic brim. The head usually engages late in pregnancy in the primigravida while in the multipara it does not engage till labour starts. The head enters the pelvic brim in oblique diameter with sub occipital frontal diameter (10.5cm). With good uterine contraction, there is more flexion of the head. The head engages with sub occipital bregmatic (9.5 cms) oblique diameter of the pelvis brim.

**Internal Rotation**

The head rotates 1/8th of a circle. Such a rotation is achieved by the action of the uterine muscle pushing downwards. The pointed vertex presents on the broad levator ani muscle. When the vertex reaches the perineum, the occiput turns from the posterior to the anterior position. Anteriorly there is more room for further descent. When the occiput is below the symphysis pubis, crowning
takes place.

**Internal rotation of the foetus**



**Birth By Extension of the Head**

Once the occiput has escaped from under the symphysis pubis, the head extends forward. The nape of the neck is pressed firmly against the pubic arch. This extension of the head causes the anterior part to stretch the perineum gradually. Further extension allows the sinciput, face and chin to escape the perineum and the head is born by extension. Extension is the result of action from two forces. The abdominal and thoracic muscles exert downward pressure. The pelvic floor and perineum resist this pressure and push the head forward and upward through the weak area, which is the vagina.

**Sinciput and face delivered**



**Restitution**The head turns 1/8 of the circle to the left, back to where it was before. This rotation takes place to undo the twist, which occurred during the previous internal rotation. This 'undoing of the twist' is known as restitution.

**Internal Rotation of the shoulder**

When the head is passing through the level of the ischial spines and the outlet in anterior posterior position, the shoulders enter in the oblique diameter of the pelvis and rotate forward 1/8 of a circle. The shoulders are now in the anterior posterior diameter of the outlet. The anterior shoulder escapes the symphysis pubis while the posterior shoulder sweeps the perineum.

**External Rotation of the Head**

As the internal rotation of the shoulders takes place, the head, which has already been born, rotates 1/8 of a circle as in restitution. The head now lies in the lateral position.

**External rotation of the head**



**Lateral Flexion**

Following these movements the body bends sideways to follow the curve of the birth canal.
The anterior shoulder escapes under the symphysis pubis and the posterior shoulder sweeps the perineum. The body of the baby is born by lateral flexion.

To recap, the cardinal movements of labour in a vertex presentation are:

1. Engagement
2. Descent
3. Flexion
4. Internal rotation
5. Extension
6. External restitution of the head
7. Expulsion

An easy way to remember these movements is by use of the mnemonic device -'**E**very **D**ecent **F**amily **I**n **E**urope **E**ats **E**ggs'.

**Management of the Second Stage of Normal Labour**

Before you begin, try to remember the probable signs of the second stage of labour. Write them down on a piece of paper.

* Expulsive uterine contraction. This may happen in occipital posterior or when the head is deeply engaged with fully loaded rectum (in a case where the mother is not in
second stage)
* A trickle of blood
* There may be no bleeding while the cervix is fully dilated
* Pouting and gaping of the anus
* Gaping of the vulva in primigravida. The vulva of multiparous will gape even in premature pushing
* Tenseness between the anus and coccyx
* Bulging of the perineum usually means delivery is imminent

**Management of the Second Stage of
Normal Labour**

**Can you recall the equipment you will need during the second stage of labour?**

You will need a trolley with a top and bottom shelf.

On the top shelf make sure you have:

* Sterile delivery pack
* Small bucket with 0.5% jik for decontaminating instruments
* Bucket with 0.5% jik for
decontaminating linen
* A bucket with plastic bag for used swabs and gloves

On the bottom shelf you should have the following:

* Suturing pack
* Antiseptic solution
* Draw sheet and mackintosh
* Syntocinon drawn, in a receiver
* Lignocaine
* 5% dextrose solution 500mls
* Needles
* Branulars
* Syringes (for emergency)
* Sterile gloves

The following steps are suggested in the management of the second stage of labour:

* Explain the procedure to the mother and reassure her
* Ask your assistant to open and arrange the delivery pack while you scrub up
* Gown and glove yourself methodically
* Instruct your assistant to put the patient in the dorsal position
* Swab the mother methodically
* Lubricate your two fingers and perform vaginal examination to confirm second stage
* You should also instruct your assistant to check the foetal heart beat after every contraction, the mother's pulse after every ten minutes and to administer syntometrin after the delivery of the anterior shoulder

**Flexing of the head and guarding of
the perineum**



**The Management of the Second Stage of Labour**

* Tell the patient to wait for a contraction. When it comes, she should take in a full breath, close her mouth and bear down as strongly as she can, then quickly take in another breath and bear down again.
* She should be able to make at least two efforts during each contraction and relax between contractions. Encourage her all the time and explain the progress being made towards the birth of her baby.
* Place the baby towel on the bed, with the scissors and two forceps for clamping the cord. Prepare two pieces of cotton wool for wiping the newborn’s eyes, some gauze for cleaning the airway and for a covering when cutting the cord.
* At this stage the head might start distending the perineum. The anus starts dilating and the head is seen at the vulva. It keeps receding between contractions.
* When the head distends the perineum check if the perineum is stretching well.
* Place the left hand on the advancing head with fingers spread equally over the vertex towards the bregma to stop any sudden explosive effort during and after crowning of the head. With the right hand guard the perineum, holding it with the pad.
* Check if the perineum is stretching. If not, give an episiotomy at the height of a contraction if there is any indication that the head is about to crown.

**Crowning of the Head**

Next is the crowning of the head. The parietal eminences pass through the bony outlet. At this stage the head no longer recedes
between contractions.

Tell the mother to stop pushing as this might lead to a rapid delivery of the head and consequent brain damage. Ask her to pant. Research has shown that a series of short pushes are more effective than a long push. Encourage her as
she pushes.

***It is really hard work! So keep
               encouraging the mother with kind
               words and warmth!***

**Extension of the head**

Assist the extension by grasping the parietal eminences with your left hand. Let the head come out slowly and naturally. Feel for the cord around the baby's neck. If it is there, slip it from the baby's neck over the head. If it is too tight, place two artery forceps on the cord and cut it between them. When the nose and mouth come out, wipe away the mucus with a sterile swab. By this point the whole head should be out.

The head will have restituted and rotated spontaneously to face the mother’s left or right thigh. This shows you that the shoulders have descended and rotated to the anterior
posterior diameter.

**Delivering the Shoulders by Lateral Flexion of the Body**

The following procedure should be followed when delivering the shoulders by lateral flexion of the body:

* Place one hand above and one below the foetal head
* Depress the head gently toward the anus/neck, making sure it is neither twisted nor bent sideways till the anterior shoulder is free

**The delivering of anterior shoulder**

**The delivering of posterior shoulder**



 Remind your assistant to give syntometrine 0.5mg intramuscularly (in a single dose)

 Guide the head upwards in the direction of the
mother's abdomen

**The delivering of posterior shoulder**





* The posterior shoulder will escape smoothly over
the perineum
* The rest of the body will be born by lateral flexion
* Ask your assistant for the time and note the time of birth
* Place the baby at a slight slant to drain the mucous
* Put the baby on the baby towel, clamp and cut the cord
* Give the APGAR score to the baby
* Show the baby to the mother to identify the sex of the baby
* Ask your assistant to continue with the immediate care of the baby
* Continue with the delivery of the placenta by using control cord traction
* Check the placenta for completeness and/or malformation.
* Measure blood loss
* Do the first examination of the baby
* Weigh the baby
* Do a post natal examination and record all the findings
* Give the mother a hot drink and transfer her to the postnatal ward

**APGAR Score**

Can you remember how to give an APGAR score?

Once the baby is out into the world, your work has just begun. You will need to assess the
baby periodically.

After delivering the baby, an assessment of the general condition is done after one minute and again after five minutes. This involves the consideration of five specific signs and the degree to which they are present or absent. The factors assessed are:

* **A**ppearance - Colour
* **P**ulse - Heart rate
* **G**rimace - good grimace
* **A**ctivity - Muscle tone
* **R**espiratory efforts – vigorous crying

A score of 0, 1, 2 is awarded to each of these signs in accordance with the APGAR Score Chart.

**APGAR Score Chart**

|  |  |  |  |
| --- | --- | --- | --- |
| **Sign** | **Score 0** | **Score1**  | **Score2** |
| Appearance | Pale or blue | Body pink, extremities blue | Pink all over |
| Pulse/ heart rate | Absent | Less than 100/min | More than 100/min |
| Grimace | None | Slight | Good |
| Activity (tone) | Limp | Some flexion/movement | Spontaneous movements/active |
| Respiratory effort | None | Weak or slow/gasping | Good/vigorous cry |

**A normal infant in good condition at birth will achieve an APGAR score of 7 to 10. A score of 0 to 3 is severe birth asphyxia and 4 to 6 is moderate birth asphyxia, both of which require immediate resuscitation of the baby.**

**Immediate Care of the Baby**

Clear the airways by sucking mucus from the mouth and nostrils and give oxygen if necessary. Ligate the cord and make sure the ligature is very tight before you cut the cord. Wipe the baby’s head and the body and wrap to keep warm. You should record the following information about
the baby:

* Label the baby with the mother’s name and
I.P. number
* Write the date and time of delivery
* Sex of the baby
* Birth weight

After handing the baby over to your assistant, you will have to continue to deliver the placenta using control cord traction. At this point you should remind yourself about the process of the third
stage labour.

**Principles of the Third Stage of Labour**

**Mechanism of the Third Stage of Labour**

**Physiology of Third Stage**

Assuming that all the aforementioned factors are well taken care of, you will now look at the physiology of the third stage of labour, starting with the mechanical factors.

**The Mechanical Factors**

During the third stage, the following mechanical factors come into play:

* The uterus reduces in size 2.5cm below the umbilicus, or 15cm above the symphysis pubis after the expulsion of the foetus
* The contraction and retraction of the uterine muscles continues
* The placental site is reduced to half
* Since the placenta is inelastic, it does not contract, so it detaches from the shrinking uterine wall
* The placenta is pushed further to the lower uterine segment by the weight of the retro-placental clot. This is the accumulated blood from the separated placenta
* With the next contraction the placenta is pushed into the vagina and expelled

You will know that the placenta has separated and has been expelled from the upper uterine segment into the lower segment or into the vagina when you have noted:

* Elongation of the cord which does not recede on pressing at the symphysis pubis
* A gush of blood
* The uterus contracts like a cricket ball.

The placenta is expelled either with maternal side exposed, known as the Mathew-Duncan method or the foetal side exposed known as the Shultz Method.

[Click here to view the Mathew Duncan method.](file:///C%3A%5CJEREMY%5CModule%202%20Reproductive%20Health%5CUnit%203%20Part%201%20Labour%2C%20Neonate%20and%20Puerperium%5Cpages%5Cpg20051101073804727.html)

[Click here to view the Shultz method.](file:///C%3A%5CJEREMY%5CModule%202%20Reproductive%20Health%5CUnit%203%20Part%201%20Labour%2C%20Neonate%20and%20Puerperium%5Cpages%5Cpg20051101073804727.html)

**Control of Bleeding**

The following steps should be taken to ensure the control
of bleeding:

* The uterine muscle’s contraction and retraction causes the placental site to reduce into half. Criss-cross fibres control bleeding by compressing the blood vessels. These fibres are also known as ‘living ligatures’
* Clotting of blood takes place in the sinuses sealing the bleeding points a few hours later when uterine contractions are less vigorous.

The time interval between the delivery of the baby and delivery of the placenta is a dangerous period, in which one of the greatest complications of pregnancy and labour can occur.
This complication is excessive bleeding or postpartum haemorrhage (PPH). You should never leave the mother alone even for a short while during this stage.

The third stage of labour can be managed either passively or actively. You will now study each of these two modes of management in detail.

**The Passive or Natural Method of Managing the Third**

 **Stage of Labour**

The passive or natural method occurs naturally, that is without any interference. For example, in a normal delivery, if oxytoxic drugs are not used, the uterus generally remains inactive for a few minutes after the delivery of the baby, after which regular contractions then begin again. Physiology of the third stage takes place, the placenta is expelled and bleeding is controlled.

**Giving Oxytocic Drugs**

Oxytocin, ergometrine or syntometrine stimulate uterine contraction. Ergometrine 0.5mg given IM causes a uterine contraction to occur five to seven minutes after the injection. Given intravenously it acts within 45 seconds. Syntometrine is a mixture of oxytocin and ergometrine 0.5ml given IM acts within two to three minutes. Usually sytrometrine is given with the delivery of the anterior shoulder while ergometrine is given at the crowning of
the head.

**Controlled Cord Traction**

The uterus must be firmly contracted before this method can be used. It is not necessary to wait for signs of placenta separation.
Place the left hand above the symphyis pubis, push the uterus upwards and backwards with the right hand and pull the cord downwards and outwards. Apply traction steadily without jerking, see the illustration on the right. When the placenta is visible at the vulva, direct the cord upwards. The placenta will follow the curve of the birth canal. Receive it with both hands and rotate the placenta. This will twist the membranes. You can then deliver the membranes with up side movements, which enable them to be drawn out
without breaking.

**Maternal Effort**

This method is not commonly used. When the placenta has separated and descended, the palm is placed downwards on the mother’s abdomen to provide a backup that the mother can push against. During a contraction, the mother should be asked to push down. The placenta will be pushed out of the vagina. This method is useful in the event of a macerated birth

  Do not apply downward fundal  pressure while doing cord traction as

  this can lead to inversion of                  the uterus.

The other method that can be used to deliver the placenta is the fundal pressure method.

**Fundal Pressure**

This method should be used in case of a macerated or pre-term baby as the strength of the cord is reduced. You should wait for the following signs of placental separation:

* The fundus feels hard like a cricket ball
* There is a gush of blood due to
placenta separation
* The cord lengthens and doesn't recede with pressure on the symphysis pubis

**Procedure**

Make sure the bladder is empty. Instruct the mother to breathe through an open mouth slowly and quietly. When there is a contraction, grasp the uterus with your left hand fingers behind the uterus. Thumb in the anterior surface. Apply pressure to the pelvic inlet in downward and backward direction. Receive the placenta with both hands. If the membranes do not slip out, turn the placenta around and deliver the membranes slowly with an upward movement. Rub the uterus and expel the clots.

Once the placenta is out, you will need to examine the birth canal.

* Explain to the mother that you need to check if she has any tears, warn her it will be a bit painful but the worst part has passed, you will be very gentle and quick and that she needs to cooperate
* Change the gloves, roll gauze over pointing and middle fingers of the right hand
* Insert middle fingers of left hand facing upwards pushing the upper vaginal wall
* With the right hand press down the lower vaginal wall exposing the cervix
* Check the cervix for bleeding, oedema or tears
* Check for any tears with the two fingers of your right hand, mop both sides of the vaginal wall, finish with the fourchette
* Reassure the mother in case there is any tear for suturing
* Cover the perineum with the folded pad into a half
* Wipe the buttocks from the fourchette towards the rectum cover the
perineum completely
* Collect any blood loss from the bed
* Change the bed linen with the help of an assistant
* In case of episiotomy or a tear, scrub your hands while your assistant is setting a sterile suturing pack and repair the tear
* Ask the mother to lie on her back with her legs crossed on each other
* Ask the assistant to hand over the baby to the mother
* Leave the mother to rest while you go to examine the placenta

**Procedure**

Write down any reasons you can think of, for examining the placenta.

**You now know why we examine the placenta. But how do you go about it?**

**The Fourth Stage of Labour**

The fourth stage starts after the delivery of the placenta and lasts for one hour. The nurse or midwife should observe the mother for blood loss, monitor vital signs, reassure her and let the mother hold the baby. The nurse should also record notes in the patients file, fill in the baby notification form and after the hour is over escort the mother to the maternity unit.

**Examination of the Baby**

 **As mentioned earlier, once the baby is delivered, a thorough first examination is done. Can you remember at what
time interval?**

A thorough physical examination is done one hour after birth with the aim of assessing maturity and excluding obvious congenital abnormalities and injuries at birth. In order to carry out this examination, you need to have with you the following equipment in
a tray:

* Tape measure
* Second hand watch
* Gloves
* Weighing scale
* Clinical thermometer
* Lubricant
* Swabs
* Stethoscope

Examine the baby systematically in the following manner:

* **Vital signs** - heart rate (120-160/min), respiration (20-60 average 44/min), and temperature (36-37 degrees centigrade).
* **Head** - Check the shape to see if there is excessive moulding, caput succedaneum or depressed fractures to exclude head injury, microcephalus or hydrocephalus. Take head circumference (Approximately 33-37 cm).
* **Ears** - Check position. If they are low set, this may indicate Down's syndrome or Mongolism. Check for any missing lobes or cartilage.
* **Eyes** - Check for presence of eyeball injuries, discharge or jaundice.
* **Mouth** - Check for harelip, cleft palate, tongue-tie or false teeth, septic spots,
thrush, cysts.
* **Nostrils** - Check for patency with no polyps or flaring.
* **Neck** - Check for congenital goitre or enlarged glands.
* **Upper limbs** - Check for equality, free movement, fractures, webbed fingers, extra digits and any bony tissues. Extra digits can be ligated with silk and will fall off (with the parents permission). Check for Erb's palsy.
* **Chest** - Check for continuity of sternum and the shape of rib-cage, respiratory rate, enlarged breast or absence of breast tissue .
* **Abdomen** - Should be intact and firm, check for umbilical hernia and exomphalus (protrusion of abdominal organs through a defect in the anterior wall). Abdominal distension is present in hydrops foetalis. Check for blood oozing from the cord and clamp again if necessary (cord shrivels within 24 hours, falls off 6-10 days).
* **External genitalia** - Confirm the sex of the baby to rule out pseudo-haemophrodism or intersexes. In males check for undescended testes, hypo/hyperspadias and phimosis. In females, check for bleeding from urethral and vaginal orifice. Vaginal bleeding may be due to excessive hormones from the mother

**Neurological Assessment**

This entails the checking of reflexes, which deal with the function of the baby’s nervous system as well as physical and behavioural assessments. At the beginning of the examination, observe the baby’s movements. These movements involve all extremities and should be random and
symmetrical but never stereotyped. Sometimes jitteriness or tremors will be noted. The first time you notice these movements they may look like fits. To determine the difference between the two, hold the affected limb. If it is the former the tremors should stop.

Neurological assessments include the following, click the links to reveal the details of each:

**Moro Reflex**

Support the baby’s head and body in supine position about a centimetre from the cot. Allow the head to drop back. Look at the baby’s response. The baby throws out his arms extending the elbows and fingers with embracing movements of the arms. What is the significance of the Moro reflex?

The Moro reflex is symmetrical in a normal baby at birth and disappears after three months. It is incomplete in the pre-term baby and absent in the baby with inter cranial drainage. If brain damage is not severe it returns after three to four days. If it disappears some hours after birth, you should then suspect increasing cerebral oedema or slow intra cranial haemorrhage.



**Tonic Neck Reflex**

A fencing position is assumed, that is, the baby lies on the back, head rotated to one side with one arm and leg partially or completely extended. The opposite arm and leg are flexed. This is a manifestation of the immaturity of the newborn’s nervous system.

**Rooting Reflex**

To test for the rooting reflex, gently touch the corner of the baby’s mouth with clean fingers. The baby will open his mouth turning towards the stimulus in anticipation of the mother’s nipple. To check for sucking reflex place a clean finger in the baby’s mouth noting the sucking strength. The sucking reflex is poor in pre-term babies.

**Stepping Reflex**

The stepping or dancing reflex is present at birth but disappears soon after. Once this reflex diminishes, the infant does not attempt a stepping motion until he/she starts to walk. Hold the infant up, with the feet touching a surface. The infant will attempt to make some steps or pressing movements.

**Grasp Reflex**

It is amusing to learn that a newborn baby can grasp. At birth, the grasping reflex of both hands and feet is present. The infant will grasp any object you place in their hand, and then let it go. They are able to hold on to a finger so securely, that you can lift them to a standing position. Stroking the soles of the feet causes the toes to turn downwards trying to grasp. By applying traction to the baby's wrists raise them to a sitting position. A full term infant will offer a strong resistance while a pre-term does not resist the pull.

**Protective Reflex**

Other reflexes include protective reflexes such as:

* The blinking reflex, which protects the eyes from bright light
* Sneezing and coughing reflexes used to clear the
infant’s throat
* The yawn reflex, which draws additional oxygen
* Cry reflex, which helps to withdraw from painful stimuli

All of these reflexes either diminish or strengthen as need be, influencing behaviour patterns, which become more complex.

Once this examination is completed, the baby can be placed on the cot for transfer to the nursery or given to the mother.

After completing the delivery of the baby, you should transfer the mother to the postnatal ward where she will rest.

**Physiology of Third Stage**

What changes take place in a woman who has just delivered
during puerperium?

The puerperium period covers six to eight weeks following delivery or abortion and is characterised by:

* General organs return to their pre-gravida state
* Initiation of lactation
* Recuperation

Have you talked to friends about how they felt during their puerperal period? You will be surprised! Some say that whenever the midwife asked them any questions, they felt irritated for no good reason. Others felt like crying when their partners were late to visit. Some felt like screaming when the baby cried and wanted to cover it with a pillow to suffocate the innocent precious baby!

**The Psychology of the Mother During Puerperium**

During the puerperium the mother is subjected to emotional turmoil and you must be supportive and observant. She should be allowed to cuddle her baby and express her love as she wishes. This maternal instinct is at times delayed.

The midwife should be kind, patient, and compassionate towards the mother and give her the necessary education concerning her and the baby. Each mother should be taken as an individual based on her maternal experience, educational background, maturity and parity. Mothers should be given all the information necessary to ensure they know how to care for their babies.

Rooming is the term given when a hospital plans for the mother to stay with the baby for most of the 24 hours in a day. It is highly recommended because it has been seen to have great psychological advantages for both mother and baby. Bonding commences immediately and demand breast-feeding can be successfully practised. Most baby-friendly hospitals in this country encourage rooming in.

**Postpartum Tears or Fourth Day Blues**

This condition is characterised by mild depression and mood swings due to a temporary endocrine hormonal imbalance following childbirth. It occurs in fifty percent of post-natal mothers on around the fourth day. A midwife should try to prevent the 'blues' by educating the mother during the pre-natal period on how to take care of herself and the baby to build up her confidence. Involve the partner in these teachings so that the partner can give moral support. Teach the mother how to check for minor discomfort and the relevant remedies to reduce the feeling of anxiety that the baby is ill whenever they cry.

It is a time of great physiological change, accompanied by some anatomical and psychological changes as well. This is a time of change in the body in general with the exception of the breasts.
The breasts continue to develop so as to establish and maintain lactation.

The other changes that take place in the mother are outlined on the following pages.

**General Involution**

Every system in the body is affected during this process, including the heart and circulatory system. With the cessation of the utero-placental circulation, the work done by the heart decreases. The quantity of blood required also gradually returns to normal. The renal and musculo-skeletal systems also return to normal.

**Involution of the Uterus**

The size of the pregnant uterus is 30 x 22 x 20cm and it weighs 100gms at the end of labour. It is 15 x 11 x 7.5cm by the end of puerperium. Involution takes place, by which point it measures 7.5 x 5 x 2.5cm and weighs 60gms. Involution is the return of the uterus to its normal size, position and tone and is brought about by autolysis
and ischaemia.

Autolysis is a process by which muscle fibres are digested by the proteolytic hormone. The muscle fibres have to dissolve a large amount of their protein in order to achieve this reduction in size. This means that a great deal of nitrogen is excreted by the body in the urine together with the excess fluid retained during pregnancy. This is why a lot of urine containing large amounts of nitrogen is excreted during the first few days after delivery. In addition, the epithelial lining of the uterus, other cellular debris, and red blood cells are expelled as lochia from the uterus.

Ischaemia is localised anaemia of the uterus, which occurs when the placenta is expelled. Blood vessels are constricted, which results in the reduction of the blood supply to the uterus. The phagocytes dispose of the redundant muscle fibre and elastic tissue. The vagina, ligaments of the uterus and muscle of the pelvis also return to their pre-gravida state. If not, prolapse of the uterus may occur later.

**Onset of Lactation**

Lowered oestrogen levels trigger the production of prolactin from the anterior pituitary gland, which initiates lactation. The maintenance of lactation depends on putting the baby on the breast, but secretion of milk commences on the third to fourth day. The baby should be put on the breast immediately, which leads to oxytocin release and assists in keeping the uterus well-contracted. (You should revise the anatomy and physiology of the breast in unit one).

**Management of Normal Puerperium**

The aim of managing the puerperium is to:

* Maintain the mother’s good health
* Aid involution of the pelvic area
* Promote breast-feeding
* Prevent infection and other puerperium complications
* Educate the mother on the proper care of her own health
and the baby

The mother and the baby should be examined daily and if any abnormality is noted, the doctor should be informed. When noting the mother’s general condition, you should check for the
following points:

* Assess happiness, sadness, worries and fears and address them appropriately.
* Ambulation is important to prevent deep venous thrombosis.
* Take her temperature, pulse, respiration and blood pressure twice daily.
* Check the breasts and if she is not lactating,
express colostrum.
* Increase expressing on the second day and milk should be established on the fourth day.
* Advise the mother on how to feed the infant. When fixing the baby on the breast she should put the whole areola in the baby’s mouth.
* She should initially breast feed the baby for three minutes to prevent cracked nipples and empty the breast in cases where the baby does not feed a lot. This is especially important in the first days to prevent engorgement.

Measure the fundal height and record the measurement daily. Assess whether the involution is taking place satisfactory. The fundal height should reduce by 0.5 - 1 centimetre daily.

Check on lochia loss, noting the colour. This should change as per the schedule we noted earlier. If there is persistent red lochia, this points to the need for further investigation. Offensive lochia odour denotes infection.

You should also check the perineum to see if there was episiotomy and note its state. Advise the mother to wash the episiotomy at least four times a day with salt water and change the pad as soon as it is soiled and after she goes to the toilet.

Check on the calf muscles and exclude any pain that may indicate deep venous thrombosis. You should also exclude oedema and anaemia. Ensure that the mother gets enough sleep and rest. If she cannot sleep, she should be given a sedative.

Take note of any pain and administer analgesics. Ask the mother to report if lochia is heavy. Also encourage her to pass urine when her bladder is full. Encourage her to continuously check on the baby's cord and to report any bleeding, especially in the first 12 hours.

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