UNIT 11 NORMAL LABOUR-II (Management)

Structure

11.0 OBJECTIVES

At the end of this unit, you will be able to:

- define normal labour and describe stages of labour;
- take history and examine a woman reporting with labour pains;
- diagnose onset of true labour;
- list the various components and their parameters for monitoring labour; and
- conduct delivery of baby, placenta and membranes.

11.1 INTRODUCTION

At the end of full term that is between 37 to 41 weeks of pregnancy, usually woman starts labour and delivers a newborn. This unit will help you in understanding normal labour in detail. In includes definition of normal labour and describes three stages of labour and their events. It also guides you to differentiate between false labour from true labour. This unit also includes detailed examination of a woman in labour. Management of the woman during all three stages of labour as well as for first few hours after delivery is also described to help you for your practical learning.

11.2 DEFINITION, ONSET AND STAGES OF LABOUR

This section deals with definition, onset and stages of labour.

11.2.1 Definition

Normal labour has been defined as spontaneous vaginal delivery of a full term live foetus (37 to 40 weeks), weighing 2.5 kg or more in weight, by vertex presentation without any intervention except episiotomy, within 24 hours of onset of labour and without any complication to the mother and foetus.

11.2.2 Onset of Labour

For better understanding of the entire process, you must know about the onset of labour.

Onset of labour is recognized by:

1) Painful uterine contractions

2) Presence of show

3) Cervical effacement and dilatation

4) Formation of “bag of waters”.

1) **Painful Uterine Contractions (Labour Pains):** Contractions of the gravid uterus are painless during pregnancy. At term contractions become painful. Transformation of painless contractions to painful contractions is gradual. To begin with, these contractions are slightly painful, last for less than 20 seconds and come at an interval of 10 to 15 minutes. They increase in frequency, duration and severity. It starts from the lower back and radiates along the groin to the front. If you palpate the uterus during contraction, it is felt to harden and become more regular in outline. The intensity/severity of the contraction is judged by the ability to indent the uterus with the fingers at the height of contraction. On palpation of the uterus, one can appreciate that the contraction starts before the woman starts feeing the pain and it lasts after the pain has subsided

2) **Presence of Show:** The **“show”** is the blood stained mucus discharge. The mucus comes from the cervical mucosa. The mucus gets blood stained as a result of haemorrhage due to separation of the membranes form lower segment due to its dilatation.

3) **Cervical Effacement and Dilatation:** This is a process in which lower birth canal dilates. At the end of full dilation of the cervix, the uterus, cervix, vagina merge with each other to form a continuous birth passage. In the process of effacement, the length of the cervix shortens. During dilatation, the internal os of the cervix dilates first followed by the dilatation of the external os. In multigravida, cervical canal may be patulous during pregnancy.

4) **Formation of “Bag of Waters”:** This is a lower pole of the foetal membranes. It becomes unsupported due to dilatation of the lower segment. During contraction it bulges in the dilated cervical canal. It contains little quantity of liquor amnii which has escaped below the presenting part. It is palpated in the dilated cervical canal as a tense, convex part during uterine contraction. As it contains liquid, it is known as a “bag of waters”.

11.2.3 True and False Labour

Sometimes the patient may not be in true labour but she does experience pain. This means that she has false labour pains. The following table will help you in differentiating true labour pains from false labour pains.

True Labour Pains	False Labour Pains
● Occur at regular intervals	● Irregular and infrequent
● Pain coinciding with uterine contractions	● Not associated with uterine contractions

True Labour Pains	False Labour Pains
● Progressive increase in frequency, duration, intensity	● Non-progressive
● From back, radiate to abdomen	● Located in lower abdomen
● Aggravated by simple enema	● Relieved by simple enema
● No effect of mild sedation	● Relieved after sedation
● Association with cervical dilatation	● Not associated with cervical dilatation

11.2.4 Stages of Labour

The process of labour gets completed in three stages:

First stage is the stage of cervical dilatation. It starts from onset of labour till full dilatation of cervix. The duration is longer; 8 to 16 hours in primigravida and 6 to 8 hours in multigravida. Clinically during this stage, uterine contractions increase in frequency , duration and severity. In the primigravida, the cervix goes on shortening along with the dilatation of the internal os. When no cervical length is palpable during per vaginal examination, it is known as “fully taken up” cervix or full effacement of the cervix. At this time, the external os may be partially dilated. The external os offers great resistance to dilatation. In primigravida the effacement takes place first followed by dilatation of external os. In a multigravida effacement and dilatation take place simultaneously. First 3 cm of cervical dilatation usually takes 8 hours and this phase of cervical dilatation is known as “latent phase”. From 3 cm to 10 cm dilatation, the cervix dilates at the rate of 1 cm per hour. This phase of dilatation is known as the “active phase”. Taking up of the cervix and dilatation of the external os occurs simultaneously. Fig. 11.1 and 11.2 will help you in understanding the mode of cervical dilatation and effacement in primigravida as well as in multigravida.

Fig. 11.1: Mode of dilatation of the cervix in a primigravida

Fig. 11.2: Mode of dilatation of the cervix in a multipara

The bag of waters bulges through the dilating cervical canal. During uterine contraction the bag becomes tense and between contractions it is lax. At full dilatation of the cervix, the bag of waters becomes unsupported and ruptures spontaneously. Due to dilatation of the cervix, presenting part descends. Descent is more marked in later part of dilatation.

Second stage of labour is the stage of expulsion. It starts at full dilatation of cervix and ends when foetus is expelled out. Its duration is longer is primigravida (1 to 2 hours) and shorter (15 to 30 minutes) in multigravida. The end of the first stage and onset of the second stage is usually associated with rupture of bag of waters. Uterine contractions become much more stronger, more frequent and last longer i.e. for more than 45-50 seconds. The presenting part now descends further from the dilated cervical canal into vagina. The vagina gradually dilates from above downwards by the passage of presenting part followed by foetal body. The expulsion of the foetus is associated with powerful uterine contractions, reinforced by voluntary muscles. Each uterine contraction is associated with deep inspiration followed by breathing out. Mother holds her breath, utilises her diaphragm, abdominal and back muscles to push out the child. Her face becomes congested, pulse increases and she perspires. When head reaches at pelvic floor, perineal body stretches; anus dilates and scalp gets visible at vulva. At the time of expulsion of the head, anus further dilates exposing the anterior rectal wall; fourchette thins out. The foetus gets expelled through dilated and stretched vulval ring with series of painful strong uterine contractions. There are chances of lacerations of perineum and hence usually to avoid irregular lacerations, episiotomy is made. After a short pause, pains return and shoulders followed by the trunk delivers out.

Third stage is the stage of delivery of after-birth. It starts from delivery of baby till delivery of placenta and membranes. Its duration is same in primigravida as well as in multigravida, that is 10 to 15 minutes. The uterus is now palpable at the level of umbilicus. As placental site is decreased due to reduction in surface area, and placenta does not reduce, placenta gets sparated from the uterine wall. The separated placenta lies in the lower segment. After about 10 minutes these changes are seen as hard and globular uterus, sudden gush of

blood and relative lengthening of umbilicus cord. Visible cord changes are due to the descent of separated placenta. The expulsion of the placenta, membrane and cord is associated with voluntary effort by the mother and usually assisted by a person conducting the delivery.

Check Your Progress 1

1) Onset of labour is recognized by:

   a) .....

   b) .....

   c) .....

   d) .....

2) Fill in the blanks:

   a) During active phase of the cervical dilatation, the cervix dilates at the rate of…….. per hour.

   b) Duration of second stage is…….hours in primigravida.

   c) First stage of the labour is known as stage of…….while second stage of labour is known as stage of……..

   d) After-birth consists of……...…… and……

11.3 EXAMINATION OF A WOMAN IN LABOUR

As soon as patient reports with labour pain, history is taken and the woman is examined.

11.3.1 History

Once a woman with term pregnancy comes to hospital with pain abdomen, it is your duty to take a full history and carry out complete examination. This will help you in making the decision that woman is truly in labour or not. If she is in true labour you should be ready for further management.

Detail history should include name, age in years, months of amenorrhoea, time of onset of pain and any discharge. You should ask her about type of pain, site of pain, frequency of pain and duration of each pain. History should also include menstrual history, obstetric history, past history and personal history. Have a look at her antenatal record if she has registered herself, this will help you to find out that the woman has normal pregnancy or high risk factors. It will inform you regarding her immunization status against tetanus. Review her antenatal card if she has any.

11.3.2 Examination

Complete examination should include general examination as well local examination. You must assess her for anaemia, blood pressure, temperature, pulse rate, and oedema feet. Look at sclera to rule out jaundice. Also examine her cardiovascular as well as respiratory system.

Local examination should include abdominal as well as pelvic examination. You can refer Unit 2 of MMEL 102 for these examination. Purpose of vaginal examination is to assess the progress of labour at the time of admission and assessment of pelvis for its adequacy. You must do vaginal examination with aseptic precautions.

In vaginal examination the following points should be noted:

1) Leaking, bleeding, discharge per vaginum

2) Cervix — Consistency (Soft or rubbery)
   — Effaced/not effaced, % of effacement
   — Thin and stretchable/non-stretchable and resistant
   — Closed or open (If open, cervical dilatation in cms)
3) Presentation — cephalic/breech/shoulder
4) Presenting part — vertex/brow/face
5) Position — anterior/posterior/transverse—left or right
6) Station of presenting part in relation to the ischial spines (expressed as 0 (at ischial spines)-1, -2, -3 (above ischial spines) or +1, +2, +3 (below the ischial spines)
7) Membranes — Present/absent. If absent presence of caput expressed as nil, +, ++, +++. Moulding (overlapping of skull bones) is noted.
8) Pelvic assessment (Refer to Unit 2 of Practical Course MMEL-102)

11.3.3 Procedures on Admission

Following are important procedures required on admission:

- Admit the woman.
- Simple enema to prevent soiling of the field during delivery.
- Urine examination for presence of albumin and sugar.
- Clipping of hair from perineum.
- Bath and clean hospital clothes.
- Reassurance.

11.4 MONITORING LABOUR

Monitoring is done to assess the following:

a) Progress of labour

b) Foetal well being

c) Maternal well being

The parameters monitored in each of the above components is given below.

a) **Progress of labour**

   a) Dilatation of the cervix in cm with time,

   b) Descent of foetal head as 5/5, 4/5, 3/5, 2/5, 1/5 or 0/5,

   c) Frequency of uterine contraction in 10 minutes and duration of these contractions in seconds and intensity of contractions.

b) **Foetal well being**

   a) Foetal heart sound (Rate).

   b) Condition of membranes if intact as (I) and if ruptured, colour of liquor as (C) if clear, as (M) if meconium stained or (A) if liquor amnii is absent.

   c) Moulding of foetal head as 0, +, ++, +++

c) **Maternal well being**

a) Maternal pulse, blood pressure, temperature

b) Urine output,

c) Medication if any is also recorded.

All these are recorded in a partogram. You will read more about partogram in Unit 3 of Practical Course MMEL-102.

11.5 MANAGEMENT OF LABOUR

Management of labour is described in this section.

11.5.1 Management During First Stage

The first stage of labour is managed as follows:

Ambulation: In early stages of labour when the membranes are intact, mother can be encouraged to move about. Contractions are stronger and it lasts longer when the woman is ambulatory.

Position: When the woman wants to lie down, she should rest in left lateral position. Supine position is avoided as it may result in compression of inferior vena cava leading to supine hypotension. Also it reduces feto-placental perfusion.

Diet: Only liquids may be allowed during early labour.

Pain Relief: First delivery is generally more painful. Fear, tension and anxiety aggravate pain. Narcotic analgesics can be used for pain relief. However, it must be remembered that all the narcotics and tranquilizers cross the placenta and may produce significant neonatal respiratory depression.

Pethidine and phenargan are drug of choice. 50 to 100 mg pethidine and 25 mg phenargan can be given by intramuscular injection. Dose of the drug should be decided according to weight of the woman. Timing of administration is important. Maximum effect of drug is seen 45 minutes after the injection and persists for 1-2 hours. For this reason drugs should not be given when the delivery is imminent as there are chances of neonatal respiratory depression. Given too early in latent phase, it may prolong the latent phase. Administration of sedative at the beginning of the active phase may be least harmful. Pethidine does not prolong the labour. Epidural amaesthesia is ideal for pain relief. But a skilled person is required and such persons may not be available at peripheral health centres.

Care of Bladder: Encourage the mother to pass urine 2-4 hourly to know urine output and to keep her bladder empty. Full bladder may lead to uterine inertia.

Reassurance : Reassurance and maintaining the moral of woman in labour is very important.

11.5.2 Management During Second Stage

Clinical Indicators

Following events indicate second stages of labour:

- Mother starts bearing down,
- She experiences urge to defecate,
- Perineum starts bulging,
- Anus gapes.

You must keep delivery tray ready with sterile supplies and instruments. Birth attendant should get ready. For this

- wear eye goggles, shoes, cover whole body with plastic gown (to protect yourself from HIV infection),

- wear cap and mask,
- wash and scurb, and
- wear sterile gown and gloves

These precautions were earlier recommended for protecting the mother from infection. However, currently these are also insisted for protection of health care providers from acquiring HIV infection.

Position of Mother for Delivery

Mostly dorsal position is used by many obstetricians; however, squatting or semi-squatting position is also recommended as it shortens the second stage by increasing the expulsive force and increasing the diameter of the pelvic outlet. It does not increase the perineal laceration and is certainly better for the neonate.

Conduct of Delivery

The woman starts bearing down at the onset of the second stage of labour. Do per vaginal examination to see the cervical dilatation and to rule out cord prolapse. When perineum is bulging and the anus starts gaping, put sterile leggings to mother up to thigh and arrange sterile towels over her abdomen and under the buttocks.

- Once cervix is fully dilated, and mother gets strong uterine contractions 4 to 5 in 10 minutes, lasting for more than 50-60 seconds, she should be encouraged to bear down during uterine contraction and relax in between the contractions.
- Auscultate foetal heart sound every 15 minutes.
- Gradually foetal head comes lower and lower. A stage will come when the scalp is seen at perineum during uterine contraction and recede during relaxation. After few more pains, the foetal scalp will not recede even during relaxation. This is known as **crowning** of foetal head.
- Episiotomy if required, should be given at this time. Episiotomy prevents irregular perineal tears, and reduces the duration of second stage. Before giving episiotomy, infiltrate the site of episiotomy on perineum with 1% xylocaine. Withdraw the piston of syringes before injecting locally to rule out tip of needle in blood vessel. Intravenous xylocaine is dangerous. Different suggested sites of episiotomy are mediolataral (left or right), median and ‘J’ shaped.

Usually medio-lateral episiotomy is given since it is convenient to give, and if it extends, there is no risk of tear of anal sphincter or anal canal.

Now deliver the foetal head slowly in between contractions. Support the perineum with clean pads during pains. The movements of the head should be properly directed to prevent perineal lacerations. Deliver the occiput first. Prevent extension of the head until biparietal diameter is free from vulva. By making pressure upon the stretched perineum with the palm of the hand, and at the same time allowing the occiput to protrude beneath the symphysis, the head will be kept from extending until the wide posterior part that is biparietal diameter has escaped. Allow head to extend gently at the end of the pain. Slip edges of stretched vulva over the face and chin during interval. Once the head is out of vulva, you can see the movement of restitution.

After delivery of the head there is a pause in the uterine contraction. If the liquor is meconeum stained, suck baby’s oropharynx with mucus sucker. If the umbilical cord has encircled the neck, pull the cord over the occiput or slip it over the shoulders when it is loose and when it is tight, cut it between two clamps.

As soon as the uterus contracts again, movements of the external rotation can be observed. When the occiput is towards the medial side of the mother's thigh, shoulders of the foetus are in antero-posterior diameter of the outlet. Support the head with the palm while assisting the delivery of the anterior shoulder. First deliver the anerior shoulder by drawing the head gently backwards. Then deliver the posterior shoulder by gently drawing head forwards (Fig. 11.3 and Fig. 11.4). Sometimes you can use your index finger to hook the axilla of the posterior shoulder and give gentle traction on the trunk when it is delivering. Time of birth of baby is noted.

Fig. 11.3: Traction to bring about descent of anterior shoulder.

Fig. 11.4: Traction to assist delivery of Posterior shoulder

A health baby will start crying soon. Normal breathing will get established immediately. Apgar score will be 8 to 10. For care of newborn refer Course MME-103.

Palpate the umbilical cord for cord pulsations. When cord pulsations stop, apply two kocher's clamp on the cord, near the vulva 1 inches apart. Cut the cord, between the two clamps with cord cutting scissors.

11.5.3 Management During Third Stage

Third stage should be managed by supervising the natural phenomenon. Some obstetrician modify the management by the administration of powerful uterine stimulant, either at the end of second stage or at the beginning of the third stage. Some give intravenous injection of 0.2 mg of methyl ergometrine (methergine) as the anterior shoulder is delivering in primi and during delivery of head in multi.

Keep the sterile receiver close to the vulva. Give baby to the mother. Ask her to relax, 10 to 15 minutes after the birth, you can see the signs of separation of the placenta and the descent of the afterbirth. Uterus becomes hard and there is gush of blood and extra valval lengthening of cord. On pushing the uterus up, the cord will not recede inside the vagina.

Placenta can be delivered by ''controlled cord traction''. Once you palpate firmly contracting uterus, place the lateral border of the left hand over the lower segment of the uterus and lift the body upwards towards the umbilicus. With right hand, clamp on the cord is drawn downwards and backwards. Thus pressure is exerted in two opposite directions. It helps in delivering the separated placenta. This technique is known as **modified Brandt-Andrews technique** (Fig. 11.5).

A

Left hand flat on the abdomen just above the symphysis by a series of gentle pushes in the direction of the arrow elevates the uterus till half of it is above the level of the umbilicus

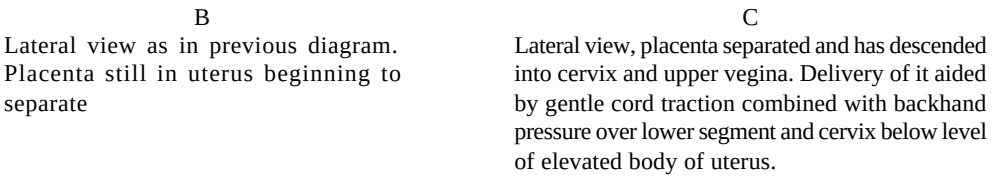

Fig. 11.5: Brandt Andrews Technique

When the placenta appears at the vulva, receive it in both hands. Gently deliver the membranes. If membranes tear or threaten to tear, catch with artery forceps, twist it and deliver the rest of membranes by gentle traction.

Swab and clean the perineum and look for any tears. Suture episiotomy in layers as shown in Practical Manual.

11.5.4 Examination of Placenta and Membranes

After the third stage of labour, ensure that the mother is in good condition by noting pulse, blood pressure, contracted uterus and vaginal bleeding. Placenta and membranes are examined for their completeness. Placenta is held by the umbilical cord (like an inverted umbrella) allowing the membranes to hang. The hole through which the baby has delivered is identified. A hand is pushed inside the hole to spread the membranes. Two layers if identified at the edge of hole without any break usually indicate their completeness. If they are torn, torn pieces are put together to give an overall picture of completeness. The placenta is then laid on a flat surface with maternal surface exposed. If blood clots are present, they are removed. Cotyleydons are inspected. Broken fragements of placenta if any are replaced before examination. All cotylydons must be complete; calcifications and infarcts are noted. The lobes of complete placenta fit neatly. Blood vessels should not radiate beyond the placental edge. If they do, look for succenturiate lobe. Insteed of a lobe, if a hole is present it indicates missing lobe. Two umbilical arteries and one vein should be present in the umbilical cord. If only one artery is seen, congenital anomalies may be present in the baby.

11.6 POST DELIVERY MANAGEMENT

Clean the vulva and perineum with antiseptic solution. Remove all blood stains and cloting. Replace with dry clothing. A sterile pad is given. She should be encourage for some hot drink.

Clean the baby. Examine for any congenital anomaly. Tie two sterile ligatures, 1 cm apart on umbilical cord, four fingers away from the abdominal wall. Cover the baby with sterile towel.

Initiation of the Breast Feeding

Give baby to the mother for early breast feeding. The baby should be taken to the breast within ½ hour of delivery. This helps in promoting uterine contractions and thus

minimizing blood loss as sucking induces oxytocin secretion from posterior pituitary. Early sucking also helps in early establishment of milk secretion.

Monitoring Mother

Check pulse, blood pressure, amount of vaginal bleeding and palpate abdomen for the uterus, which should be hard and contracted every 15 minutes for the first one hour and half hourly for the next 2-3 hours. This will enable you to detect PPH early before haemorrhagic shock develops.

Check Your Progress 2

1) Components of the partograph are:

   a) .....

   b) .....

   c) .....

2) Three important observations of the progress of labour are:

   a) .....

   b) .....

   c) .....

3) Tick True/False for following sentences:

   a) Episiotomy should be given at the time of crowning of the foetal head. (True/False)

   b) Always sedate the mother at the time of full dilatation of the cervix as uterine contractions are most painful. (True/False)

   c) The partograph is managerial tool for monitoring a normal labour. (True/False)

   d) Breast feeding should never be initiated before 48 hours. (True/False)

   e) For recording frequency of uterine contraction, you should count uterine contraction for half an hour. (True/False)

11.7 LET US SUM UP

In this unit we have learnt the definition of normal labour and various stages of labour. Events of each stages are described. Examination of a woman coming with full term and pain in abdomen, is discussed in detail to confirm true labour and find out the progress of labour at the time of admission. Partograph as a managerial tool is introduced. Management of all three stages of labour and post delivery management are also described.

11.8 KEY WORDS

Episiotomy : Deliberate incision on maternal perineum at the time of birth to avoid irregular lacertions of perineum.

Full Term : Pregnancy of 37 to 41 weeks of gestation.

Moulding : Changes in the foetal head to adopt the maternal pelvis varying mobility between foetal bones.

11.9 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress 1

1) a) Painful uterine contraction.

   b) Presence of show.

   c) Cervical effacement and dilatation.

   d) Formation of “bag of waters”.

2) a) 1 cm

   b) 1 to 2

   c) dilatation, expulsion

   d) placenta, umbilical cord, membranes.

Check Your Progress 2

1) a) Foetal record

   b) Record of progress of labour

   c) Meternal record

2) a) Cervical dilatation

   b) Descent of head

   c) Uterine contraction (Frequency and duration)

3) a) True

   b) False

   c) True

   d) False

   e) False

11.10 FURTHER READINGS

Holland & Brews, *Manual of Obsterics* (1991), 15th Edition, B.I. Churchil Livingstone Pvt. Ltd., New Delhi.

Oxorn, H., *Human Labour and Birth*, Fifth Edition.

Pritchard, MacDonald, Gant (egs). *Williams Obstetrics*, (1996) 20th Edition.