Management of normal labour
By Dr. Hana

**Definition**
-Normal labour can be defined as The spontaneous delivery of a single living term fetus with vertex, occipito-anterior position without:-
1-any surgical intervention (except episiotomy).
2-any fetal or maternal complication.

**The first stage of labour:**
The first stage of labour begins with the onset of true labour pains and ends with full cervical dilatation.

This can be divided into two phases:
-**The latent phase** (from 0-3 cm).
-**The active phase** (from 3- full cervical dilatation) and the cervix should dilate at a rate of 1 cm/ h.

**The latent phase:**
-Starts from onset of labour until the cervix reaches 3cm dilatation.
-Lasts about 8 hours or less.
-Contractions occurs at least twice every 10 minutes with each lasting > 20 seconds.

**The active phase:**
-Starts when the cervix reaches 3 cm dilatation.
-Contractions occurs 3 times every 10 minutes, with each lasting > 40 seconds.
-The cervix should dilate at a rate of 1cm / hour or faster.

**DIAGNOSIS OF THE ONSET OF LABOUR**
*SUSPECT OR ANTICEPATE THE ONSET OF LABOUR IF the woman has:*
• Blood stained mucus discharge per vagina (show ).
• Watery vaginal discharge.

**Confirm the onset of labour if there are the following:**
• True labour pains.
• Progressive cervical dilatation.
• Progressive cervical effacement.
• Formation of the bag of fore water which bulges through the cervix and becomes tenser during uterine contractions.

**Purpose of the partograph:**
*To detect abnormal progress of labour as early as possible.
* To prevent prolonged labour.
* To recognize CPD long before obstructed labour.
* To assist in early decision on augmentation or termination of labour.
* To increase the quality and regularity of all observations of the mother and fetus.
* To recognize maternal or fetal problems as early as possible.
**Component of the partograph:**
- Part I assessment of fetal condition.
- Part II progress of labour.
- Part III assessment of maternal condition.
- Part IV outcome of labour.

**Analgesia:**
- Pethidine (meperidine hydrochloride):
  Give 50-150mg IM at intervals of 3-4 hours unless delivery is expected after 1-3 hours.
  A more rapid effect is achieved by giving it intravenously, but not more than 50 mg of Pethidine should be given at one time by this route.
- Entonox (nitrous oxide is a 50/50 mixture with oxygen) has been shown to be a more effective analgesic in labour than Pethidine.
- Epidural analgesia is the gold standard for pain control in labour.

**Assessment of the maternal condition:**
- Check maternal pulse, blood pressure and temperature every two hours.
- Check for uterine contractions (frequency and duration) for ten minutes every half an hour.
- Check for any gush of fluid per vagina (make note of the time and manner of membrane rupture and the condition of liquor.)
- Perform vaginal examination to assess cervical dilatation and effacement, descent of the presenting part and presence of excessive molding or caput.
- The frequency of vaginal examination should be individualized according to the case (every 3-4 hours in the latent phase and every 1-2 hours in the active phase.
- A vaginal examination should be done after rupture of the membranes to exclude cord prolapse.

**Assessment of the fetal condition:**
- Assess the amniotic fluid (color and amount).
  **If cardiotocography is available:**
  - Perform an admission test for all labouring women (a 20 minute period of external electronic fetal monitoring upon admission.
  - In high risk cases and cases with borderline cardiotocography, apply continuous electronic fetal heart monitoring.
  - In low risk cases, perform intermittent electronic fetal heart monitoring (e.g. 15 minutes every hour).
  **If no cardiotocography available:**
  - Perform intermittent auscultation every 15 minutes in high risk cases and every 30 minutes in low risk cases (listening for one minute after uterine contraction).
  - If there is fetal distress, stop oxytocin, place the patient on her left side and administer oxygen via a mask.
Augmentation of labour:  
**Definition:**  
Augmentation of labour is the stimulation of spontaneous uterine contractions that have been considered inefficient because of poor progress in cervical dilatation and/or descent of the presenting part of the fetus.

**Methods of augmentation:**  
1. **Amniotomy:**  
   • When augmentation becomes necessary the first approach should be to rupture the membranes.  
   • The available data suggest that amniotomy will shorten the length of spontaneous labour and may avoid the need of oxytocin infusion in some patients.

**Artificial rupture of the membranes.**  
**Sweeping the membranes**

**Risks of amniotomy:**  
- Pain and discomfort.  
- Bleeding.  
- Infection.  
- Abruptio placenta.  
- Cord prolapse.

**Methods of augmentation**  
2. **Oxytocin:**  
   - Intravenous infusion of synthetic oxytocin, usually after either spontaneous or artificial rupture of the membranes, is the most widely used treatment to augment labour when progress is deemed to be inadequate.

**Dose:**  
- Administer oxytocin 5IU in 500 ml of ringer’s or saline (10mU/ mL):  
  - *If an infusion pump is available*  
    start with 2mU/min and increase the dose every 30 min by 2mU/ min until satisfactory uterine contractions have been established or to a maximum of 32mU /min.  
  - *If no infusion pump available:*  
    Start with 12 drop / min (6mU/ min) and increase the dose every 30 minutes by 4drops/ min, until satisfactory uterine contractions have been established or to a maximum of 64 drops / min.
**Precautions:**
- Use oxytocin to augment labour after waiting at least one hour after amniotomy if uterine contractions are still inadequate.
- Observe the fetal heart rate and uterine contractions closely.
- Be very cautious regarding the use of oxytocin in the presence of:
  - Borderline CPD (avoid if significant).
  - History of lower uterine segment CS.
  - High parity.
  - Breech presentation.
  - Marked uterine over distension as in a multiple pregnancy or hydramnios.

**Risks in using oxytocin**
- Uterine hyperstimulation which may lead to fetal distress and / or uterine rupture.
- Abruptio placenta.
- Hyponatremia and water intoxication.
- Neonatal hyperbilirubinemia.

**Management of the second stage of labour**

**Definition**
The 2nd stage of labour is the stage of fetal expulsion.
It begins with full dilatation of the cervix and ends with expulsion of the fetus.
- The 2nd stage of labour is a serious stage since the utero-placental perfusion is reduced due to strong contractions, resulting in decreased oxygenation of the fetus.
- The decreased oxygenation is accompanied by acidosis.
- Therefore the fetus should be carefully monitored during the 2nd stage.

**Diagnosis of the onset of the 2nd stage:**
- By definition the 2nd stage begins when the cervix is fully dilated.
- This anatomical onset may or may not coincide with the onset of the expulsion phase when the woman feels the urge to bear down.
- If the mother feels that she wishes to start pushing when the progress of labour gives reason to believe that the cervix may not be fully dilated, cervical dilatation should be checked.
  - If the cervix is less than 8cm, the woman should be asked to find the position in which she feels most comfortable and try to resist the urge to push, by trying alternatives such as breathing techniques.
  - If the cervix is 10 cm dilated but still there is a rim of cervix left and the woman has an irresistible urge to push, it is unlikely that any harm will come from this spontaneous pushing.
  - If the cervix is fully dilated but the presenting part remains high, it is thought that the premature urge to push should be discouraged because this will result in maternal exhaustion.
  - If the presenting part is visible at the introitus, full cervical dilatation can be assumed.
  - Spontaneous pushing is preferred, avoid directed pushing.
**Duration of the second stage:**
- It is about 1 hour for primigravida and half an hour for multigravida.
- Many factors influence the duration of the 2nd stage of labour:
  - Parity.
  - Epidural analgesia.
  - Fetal position.
  - Strength of contractions.
  - Fetal size.
  - Perineal resistance.
- A conservative approach will allow a spontaneous delivery or a safer instrumental delivery at a lower station.
- Terminating the 2nd stage of labour electively on the bases of duration, will increase the incidence of unnecessary instrumental delivery and CS.

*The fetal heart rate should be monitored every 5 min or after every contraction during the 2nd stage.*

**Preparation for delivery:**
- Place the labouring woman in the dorsal lithotomy position with the back elevated.
- Scrub the vulva and perineum and cover with sterile towels.

**Care of the perineum**

1. **Supporting the perineum**
   - Use the palm of one hand to support the perineum during contractions, trying to maintain head flexion.

2. **Massaging the perineum:**
   - There is no evidence to support massaging the perineum during the 2nd stage of labour.

**Episiotomy:**
- There is no evidence to support claims that routine use of episiotomy reduces the risk of severe perineal trauma, improves perineal healing, prevent fetal trauma, or reduce the risk of urinary incontinence after delivery.
- Episiotomy should be used only to relieve fetal or maternal distress or to achieve adequate progress when it is the perineum that is responsible for lack of progress.
**Use of oxytocin**
- Use of oxytocin in the second stage of labour will facilitate normal delivery and reduce the need for instrument delivery.
- Care should be taken in using oxytocin in the second stage of labour in Multiparous women and in those with a previous CS.

**DELIVERY OF THE HEAD:**
- After crowning, allow gradual extension of the fetal head by supporting the perineum with one hand and applying downward pressure on the occiput with the other hand
- As the head is delivered, the face is quickly wiped and the nose and mouth are aspirated.
- If there is a coil of the cord around the neck, slip it over the neonate’s head if loose enough, but if it is applied too tightly to the neck it should be cut between two clamps and the neonate promptly delivered.

<table>
<thead>
<tr>
<th>Occurrence</th>
<th>Position of head</th>
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<tbody>
<tr>
<td>Engagement of head</td>
<td>OT</td>
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<tr>
<td>Descent to pelvic floor where guttering encourages rotation of head 90°</td>
<td>OA/OP</td>
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<tr>
<td>Further descent of head and occiput under symphysis</td>
<td>OA (or OP)</td>
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<tr>
<td>Head extends and face passes over perineum</td>
<td>OT</td>
</tr>
<tr>
<td>Restitution – head realigns with shoulders</td>
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The anterior shoulder is then delivered under the symphysis with downward traction then an upward sweep to deliver the posterior shoulder carefully over the perineum. Finally, the infant is delivered onto the mother’s abdomen.

**Delivery of the shoulders:**
- After external rotation of the head, the sides of the head are grasped with both hands and gentle downward traction applied until the anterior shoulder appears under the pubic arch. Then by an upward movement, the posterior shoulder is delivered.
- Finally the anterior shoulder is delivered by a downward movement.

**Delivery of the trunk:**
- The rest of the body almost always follows the shoulders without difficulty.
- In case of delay delivery of the rest of the body may be hastened by moderate traction on the head.
- Hooking the fingers in the axillae should be avoided.
- Fundal pressure is contraindicated.
Management of the third stage of labour:

Definition:
- The third stage of labour is the stage of separation and expulsion of the placenta.
- This stage starts immediately after delivery of the neonate and ends with delivery of the placenta and membranes.
- The first two hours immediately following delivery are critical and this period has been designated by some as the fourth stage of labour.
- Post partum haemorrhage is more likely at this time.

Active versus expectant management of the 3rd stage of labour:
There is evidence to support implementing active management of the 3rd stage of labour as it reduce the amount of blood loss and decrease the risk of PPH.

Active management of the third stage:
1. Give oxytocin 10U IM with the delivery of the anterior shoulder or after delivery of the neonate.
   - If oxytocin is not available give other uterotonics as ergometrine 0.2mg IM, Syntometrine (one ampule) IM, or misoprostol 400-600 ug orally.
   - Oral misoprostol should be reserved for situations when safe administration and/or appropriate storage conditions for injectable oxytocin and ergot is not possible.

2. Early clamping of the cord (within 30 seconds of delivery) should be carried out (clamp the cord close to the perineum)
   - The cord should be immediately clamped in the following cases:
     *Rh incompatibility.
     *Preterm labour.
     *Cases with possible Polycythemia of the fetus (maternal DM, IUGR).

3. When the uterus contracts, deliver the placenta by controlled cord traction with a hand pushing the uterus upward to prevent uterine inversion.
   Check the placenta and membranes for any missing parts.

The available data suggest that oxytocin is a better choice than ergot derivatives, as the use of the latter may be associated with rare but serious complications such as cardiac arrest, myocardial infarction, pulmonary edema and intra-cerebral haemorrhage.

Care of the mother immediately after delivery of the placenta (fourth stage of labour):
• The mother should be carefully monitored during the first two hours postpartum:
  • Check the general condition of the mother (pulse rate, blood pressure and temperature every half an hour).
  • Check if the uterus is contracted (if poorly contracted gentle uterine massage can be helpful).
  • Check the uterine Fundal height (blood may accumulate in the uterine cavity).
**Important consideration in dealing with labouring woman:**
1. Reassure labouring women on admission.
2. Speak to the patient with respect and dignity.
3. Explain all the procedures to be done.
4. Keep the patient covered during the examination and when transferring her from one room to another.
5. Respects the woman's pain and her right to have analgesia.
6. Keep the family informed of the progress.

*Thank you*