



## **Management of Normal Labor**

### **Aim**

- 1-to achieve delivery of a normal healthy child with minimal physical discomfort and maximum psychological satisfaction for the parents**
- 2-To anticipate, recognize and treat potentially abnormal conditions before significant hazard develops for the mother or the fetus**

### **Conduct of the first stage**

- 1-Admission with history and examination.(see table)  
Identify high risk patients (see high-risk pregnancy)**
- 2-Most women will desire to have shower or bath**
- 3-Routine shaving and administration of an enema are unnecessary.  
Occasionally the mother requests suppositories or an enema because she fears embarrassment if she subsequently soils the linen later in labor**
- 4-Mother should be free to walk around and should be encouraged to do this unless there is overriding medical reason for her to be in bed**
- 5-If no EFM, avoid supine position for fear of aortocaval compression with hypotension and decrease in placental perfusion**
- 6-No food or drink should be taken with exception of sips of iced waater**
- 7-Magnesium trisilicate, 15 ml every 2 hours to reduce the risk of aspiration pneumonia should general anesthesia be required subsequently**
- 8-Encourage mother to empty the bladder at least every 2 hours and before vaginal examination. Catherization may be required if the bladder becomes palpable and the mother is unable to void voluntarily. This is particularly likely with epidural analgesia.**

### **Assessment (see partograph)**

- \*General examination with recording of pulse,temperature and blood pressure**
  - elevated BP suggests preeclampsia**
  - elevated temperature suggests infection**
  - Rapid pulse may indicate hypovolemia(normally pulse rate may reach 100bpm)**
- \*Leopold's maneuvers used to determine the orientation of the fetus through abdominal palpation. lie, presentation and engagement of the presenting part. The head is determined in 5/5 above pelvic brim .**

### **\*Vaginal examination**

#### **-Timing**

- 1-Immediately following admission**
- 2-Immediately following rupture of membranes**
- 3-At 2-4 hours intervals when labor is established**
- 4-If any relevant adverse event supervene e.g meconium staining of AF or abnormalities in FHR**

## **Procedure**

- The procedure should be explained to the mother and she should be encouraged to void urine before the examination
- The vulva is cleaned with antiseptic solution and a sterile glove lubricated with antiseptic cream is used.

**N.B** Ritual scrubbing, sterile gowning and draping are quite unnecessary.

## **Features to note on vaginal examination**

**1**-the condition of **external genitalia** is noticed e.g bleeding,discharge..etc.

**2**-Assessment of **pelvic adequacy**.subpubic angle, ischial spines,promontory and sacral curvatures

### **3-Cervix**

\*Position is recorded. usually posterior position indicates early or no labour

\*dilatation and effacement

-Dilatation is usually expressed in centimeters, as general the fingers can estimate the cervical dilatation:

**1.5cm**:one finger fits tightly through the cervix and touches the fetal head

**2cm**:one finger fits loosely inside the cervix,but cervix can not fit two fingers

**3cm**:two fingers fit tightly inside the cervix

**4cm**:two fingers fit loosely inside the cervix

**6cm**:there is still 2cm of cervix still palpable on both sides of the cervix

**8cm**:there is only 1cm of the cervix still palpable on both sides of the cervix

**9cm**:Not even 1cm is left laterally,or there is an anterior lip of the cervix

**10cm**:cervix could not be felt anywhere around the fetal head.

-Effacement is easiest to measure in terms of centimeters of thickness i.e 1cm thick, 1.5cm thick etc. Alternatively it could be expressed in percent of an uneffaced cervix..i.e 50%,90%.This expression presumes a good knowledge of what an uneffaced cervix should feel like

**4**-Membranes should be felt between fingers and record if intact or ruptured. If ruptured the colour and consistency of AF should be noted.

### **5-Presenting Part**

-nature e.g vertex, buttock..etc

-position e.g LOT,ROP..etc

-station..its relation to ischial spines..-1,-2 or +2

-moulding..the overlap of bones of the skull

-Caput..edema of the scalp..indicates some degree of CPD

**6**-Abnormalities e.g cord presentation or prolapse, tumor, septa..etc

These observations are recorded in the partograph.

**\*If necessary a scalp electrode and/or intrauterine catheter can be inserted and if these are already being used their position and function should be checked on completion of the examination and adjusted or reapplied as required.**

### **Observations During labor**

- 1-Maternal pulse rate every 30 minutes**
- 2-Maternal BP every 2 hours, more frequently if indicated**
- 3-Maternal temperature recorded every 4 hours**
- 4-Drainage of amniotic fluid, amount and character are recorded every 30 minutes**
- 5-Descent of the head recorded every 2 hours**
- 6-Uterine contractions every 30 minutes**
- 7-Fetal heart rate every 15 minutes**

### **Monitoring maternal Contractions**

#### **1-Clinical palpation**

**In absence of tocography, record frequency, strength, duration as judged by palpation and the mother's responses at least every 30 minutes. Contractions usually occurs 3 in 10 minutes,lasting 45-60 seconds.**

#### **2-Electronic Monitoring of contraction(Tocography)**

- a-External tocography gives semiquantitative feature**
- b-Intra-uterine catheter may be required in special situations e.g with use of oxytocine infusion, but is rarely necessary in normal labor**

**1-Contractility: effective contractions should have an amplitude of 50-75mmhg, duration of 45-90 seconds and frequency every 3-5 minutes.**

**2-Resting tone: spontaneous labor it is 5-15 mmhg and with oxytocine it reaches to 15-20mmhg.**

**3-Rythmicity: presence of coupling or tripling may represent hyperstimulation**

**4-Configuration: typically it is bell-shaped, may become rectangle during pushing**

**N.B**

**\*the area under the curve when an internal transducer is used may be calculated to determine the adequacy of uterine contractions**

**\*if hypercontractility present:(coupling,or duration >90seconds)**

**a-Discontinue oxytocine if it is in use**

**b-give subcutaneous terbutaline 0.25mg if there is sings FHR abnormalities**

## **Fetal Heart Monitoring**

**1-Auscultation by Doppler every 30 minutes during first stage and every 5 minutes during second stage**

**2-Electronic FHR monitoring**

**a-External Cardiotocography using ultrasound**

**b-Internal Monitoring: Scalp electrode usually provides more complete information and can be applied when membranes rupture**

## **Appropriate monitoring in an uncomplicated pregnancy**

**1) for women who is healthy and has had an otherwise uncomplicated pregnancy, intermittent auscultation should be offered and recommended in labor to monitor fetal heart :**

**-In the active phase , intermittent auscultation should be offered after a contraction for a minimum of 60 seconds and at least:**

**-every 15 minutes in the first stage**

**-every 5 minutes in the second stage**

**2)Continuous EFM should be offered and recommended if intermittent auscultation shows:**

**a-baseline less than 110bpm or >160bpm**

**b-any evidence of decelerations**

### **Indications for EFM**

**1-maternal diseases associated with uteroplacental insufficiency:**

**a-hypertension b-DM c-heart disease d-severe anemia e-renal disease**

**2-Preterm labor**

**3-postterm labor**

**4-IUGR**

**5-If during labour:**

**a-there is meconium staining of AF b-oxytocine is used**

**c-failure to progress d-excessive vaginal bleeding**

**e-if intermittent auscultation is not satisfactory**

**N.BCurrent evidence does not support the use of admission cardiotocography in low-risk pregnancy and it is therefore not recommended.**

## Interpretation of FHR tracing

### 1-Baseline FHR

1) Normal baseline 120-160bpm

2) Tachycardia: >160bpm

a-Fetal hypoxia

b-Maternal fever

c-Hyperthyroidism

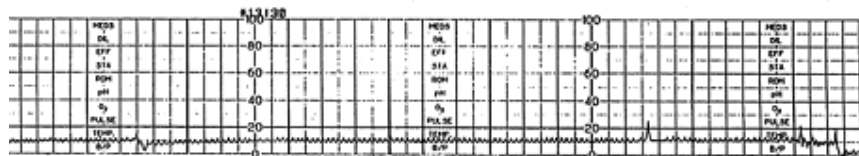
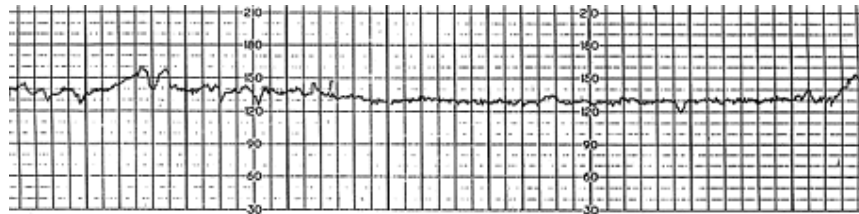
d-Drugs e.g parasympatholytic or parasympathomimetic

3) Bradycardia: <120bpm

a-Fetal Asphyxia

b-Anaesthetics

c-Fetal cardiac conduction defect(usually benign)



Baseline FHR=140bpm

### 2-Variability

Two types of variability can be seen

1) short-term variability: Beat-to-beat variations is normally 5-10bpm, this is reliably assessed with internal monitoring

2) long-term variability: waviness of the FHR tracing which normally has a frequency of 3-10cycles/minute and amplitude of 10-25bpm

Decreased variability

1-Fetal sleep cycles

2-CNS depression secondary to:

a-Hypoxia

b-Extreme prematurity

c-congenital anomalies

d-drugs e.g parasympatholytic agents

**N.B** Loss of variability is usually associated with high incidence of fetal acidosis and low Apgar score.

### **3-Common periodic Patterns**

#### **1-Acceleration periodic increase in FHR >160bpm**

**\*Reassuring if associated with fetal movement**

**\*may be compensatory before or after deceleration**

#### **2-Decelerations periodic decrease in FHR <120bpm**

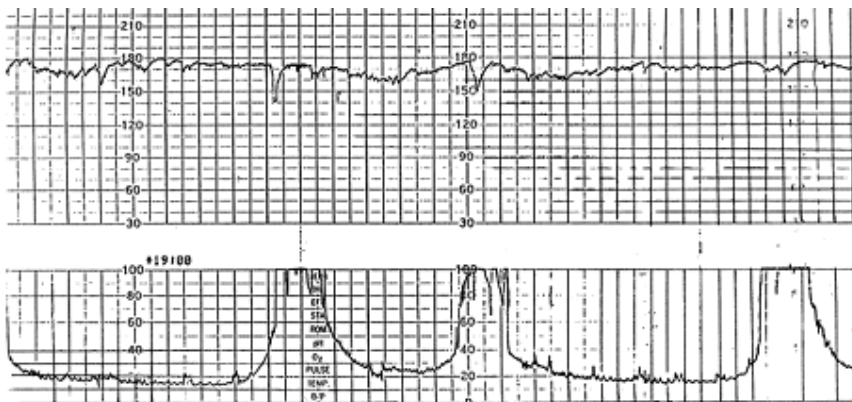
**3 types of decelerations are encountered early, late and variable decelerations.**

##### **1)Early deceleration**

**occur coincidentally with uterine contractions and are associated with fetal head compression.**

**Cause:vagal nerve stimulation**

**Pattern: start early in the contraction phase, reach their lowest point at the peak of contraction and return to baseline levels as contraction finish**



##### **2-Late Deceleration**

**Transient but repetitive decelerations of FHR observed to occur late in the contraction phase, reaches its lowest point after the acme of contraction and returns to baseline once the contraction is over**

**Cause: Result from fetal hypoxia and indicates uteroplacental insufficiency and are always considered ominous.**

##### **3- Variable deceleration**

**Characterized by variable duration, timing in relation to contraction and intensity.**

**This is a reflex pattern, typically secondary to umbilical cord compression.**

**Poor prognostic signs:**

- 1-association with poor FHR baseline variability
- 2-Lack of pre-deceleration and post-deceleration accelerations
- 3-Slow return to baseline or failure to return to baseline
  - a-biphasic shape (W) sign=knot of cord
  - b-prolonged duration >120seconds can be seen with:
    - 1-maternal hypotension
    - 2-maternal hypoxia
    - 3-tetanic contractions
    - 4-prolapsed cord
    - 5-fetal scalp procedures (vaginal)
    - 6-paracervical or epidural analgesia

**N.B prolonged deceleration after severe variable deceleration may signal impending fetal demise**

**General measures to manage FHR abnormalities**

- 1-turn the patient to left lateral position to alleviate vena cava compression
- 2-Discontinue oxytocin
- 3-Apply 100% oxygen at a rate 8-10L/min by face mask
- 4-Correct maternal hypotension
- 5-Vaginal examination to rule out cord prolapse and estimate duration of labor
- 6-Consider fetal scalp blood sampling for pH determination
- 7-decreased variability, try fetal scalp stimulation, if return to normal it is reassuring, if unresponsive follow other measures
- 8-prolonged progressive late deceleration with pH <7.20 proceed to CS. In some cases with severe late deceleration, there is no time to perform fetal scalp pH, proceed to CS to save the baby.
- 9-consider terbutaline 0,25mg SC if there is titanic contraction
- 10-consider amnioinfusion in cases with variable deceleration in absence of cord prolapse

**Fetal stimulation test**

When the scalp is stimulated and there is an acceleration of 15bpm lasting 15 seconds, it denotes fetal pH value of 7.22 or greater , the reverse is not true.

**Fetal Scalp Blood sample**

\*Units employing EFM should have ready access to fetal blood sampling facilities.

\*Fetal scalp blood sampling is indicated whenever there is persistent abnormality of FHR

**Contraindications**

- 1-maternal infection e.g HIV,hepatitis,herpes simplex
- 2-fetal bleeding disorders e.g hemophilia
- 3-Prematurity <34 weeks

**\*Fetal blood sampling should be undertaken with the patient in left lateral position.**

**Interpretations of results:**

<b>FBS Results</b>	<b>Subsequent action</b>
<b>1-&gt;7.25</b>	<b>1-Repeat samples if FHR abnormalities persists</b>
<b>2-7.21-7.24</b>	<b>2-repeat FBS within 30 minutes or consider rapid delivery if there is rapid fall since last sample</b>
<b>3-&lt;7.20</b>	<b>3-Immediate delivery</b>

**Conduct of second stage of labor**

The second stage begins at full dilatation of cervix, but usually the mother is asked to push only when she feels involuntary bearing down which occurs a result of reflex action when the head press on the pelvic floor muscles. It is important not to let the mother push until she has the urge to bear down even with fully dilated cervix to avoid maternal exhaustion.

**Observation**

**Maternal**

- 1-contractions**
- 2-pulse and blood pressure with level of hydration**
- 3-vaginal examination to assess the descent of head if delivery is not imminent 30 minutes after pushing down**

**Fetus**

- 1-fetal heart every 5 minutes**
- 2-descent of the head**

**Position in delivery**

Traditionally mothers are usually delivered in left lateral position, dorsal position or lithotomy position, however, mother can take any position she prefers as long as it does not increase the risk of trauma.

**Delivery procedure**

**\*Aim is to allow natural progress and expulsion as far as possible**



**\*To minimize perineal trauma some control of the delivery of the head and shoulders is advisable and an episiotomy may be required if tearing seems imminent.**

**When the head starts to distend the vulva:**

**1- A rectal pad is placed over the anus with the right hand**

**2-the advancing head is controlled with the palm and fingers of the left hand, with the fingers placed evenly over the vertex.**

**Head should be delivered towards the end of contraction**

**3-Episiotomy is performed if there is undue perineal stretching**

**4-Flexion of the head is maintained until the occiput and parietal eminence are free. The later is then gripped between fingers and thumb to aid extension of the head**

**5-When the chin is free the rectal pad is discarded and mucus is wiped from the baby's face and nose**

**6-The head is supported by one hand whilst the other is used to explore for loops around the neck.If the cord is tightly round the neck two clamps are applied and the cord is cut before delivery of the shoulders**

**7-Delivery of shoulders**

**usually takes place with the next contraction. The anterior shoulder is assisted by placing the hands on the head, with the fingers towards the neck exerting gentle pressure towards the anus.**

**8-When the anterior shoulder is delivered the head is guided upwards towards the the mother's abdomen, allowing the posterior shoulder to sweep the perineum**

**9-shoulders are supported with the right hand and the buttocks with the left hand as the trunk is delivered**

**10-syntometrine (ergometrin maleate 0.5mg+oxytocin 5 units) is given I.M by the assistant during this process, preferably at the time of the anterior shoulder is delivered**

**11-the time of delivery is noted**

**12-the baby is positioned with the head dependent (lower than chest) and clear mucus is wiped from the mouth and nostrils**

**13-The umbilical cord is clamped approximately 10cm from umbilicus with two clamps and is divided between clamps**

**14-the baby is given to the mother as soon as possible to fondle**

**15-A recervior is placed close to the vulva to receive the placenta and any blood clots**

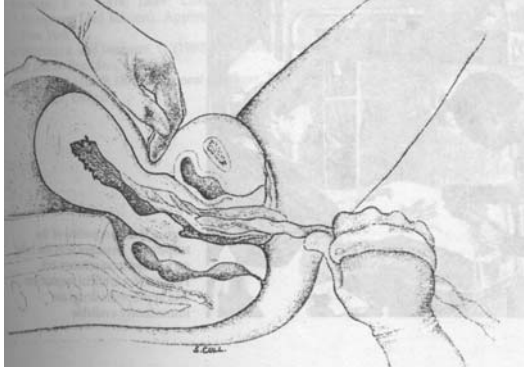
**Conduct of the third stage**

**To minimize PPH delivery of placenta is aided pharmacologically by injection of syntometrine and mechanically by controlled cord traction**

If syntometrine is not given at the time of anterior shoulder it should be given as soon as possible.

When the uterus contracts expulsion of placenta is assisted as follows:

- 1-The left hand is used to support the fundus of the uterus by suprapubic pressure
- 2-the fingers are pressed firmly backwards immediately above the symphysis pubis, thus supporting the uterus and tending to pull it downwards
- 3-At the same time steady cord traction is applied with the right hand
- 4-As the placenta is expelled from the vulval orifice both hands are used to complete the delivery of the placenta and membranes into the reservoir



**Expectant management**

If no syntometrine used watchful waiting for signs of placental separation. No attempts should be made to pull the cord otherwise inversion of uterus will occur.

The uterus is palpated to make sure it is firm and signs of placental separation are observed:

- 1-Uterus become globular and firm, the earliest sign
- 2-there is often a sudden gush of blood
- 3-the uterus rises in the abdomen because the placenta passes down into the lower segment and vagina where its bulk pushes the uterus upwards
- 4-suprapubic bulge felt when placenta occupies the lower segment
- 5-The umbilical cord protrudes farther out of the vagina, indicating that the placenta has descended

these signs appear within about a minute after delivery of the infant and usually within 5 minutes.

When placental descend signs appear the physician first ascertains that the uterus is firmly contracted. The mother ,if not anesthesized, is asked to push down to deliver the placenta,

If this fails the physician after confirming that the uterus is firm and contracted , firmly exerts pressure with the hand on the fundus and propel the detached placenta into the vagina. As the placenta passes through the intriotus fundal pressure is stopped, then placenta is gently lifted away from the intriotus. If membranes are torn they are clamped and gently pulled .

**N.B Traction on the cord must not be used to pull the placenta out of uterus**

**Placenta, membranes and cord should be carefully examined to make sure it is complete.**

#### **Fourth stage**

**The hour immediately after delivery of the placenta is a critical period as postpartum hemorrhage due to uterine relaxation is most likely to occur in this period.**

**It is mandatory that the uterus be evaluated very frequently throughout this period by a competent attendant who keeps a hand on the fundus and massages it at the slightest sign of relaxation. At the same time vagina and perineal region is also frequently inspected for any bleeding.**

---

#### **Important Disclaimer**

**The content displayed by the physician writers & editors of arabicobgyn.net is designed to be educational. Under no circumstance should it replace the expert care and advice of a qualified physician. Arabicobgyn.net does not give medical advice or care to its viewers. Rapid advances in medicine may cause information contained here to become outdated, invalid or subject to debate. Accuracy cannot be guaranteed. Arabicobgyn.net physicians, writers, editors and management assume no responsibility for how information presented is used by the public.**