

Normal labour

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- Labour is defined as the onset of regular painful contractions with progressive cervical effacement and dilatation of the cervix accompanied by descent of the presenting part.

Normal labour

Spontaneous expulsion,

of a single,

mature fetus (37 completed weeks – 42 weeks),

presented by vertex,

through the birth canal (i.e. vaginal delivery),

within a reasonable time (not less than 3 hours or more than 18 hours),

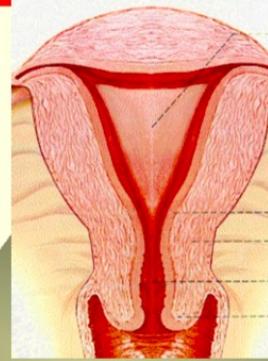
without complications to the mother,

or the fetus



Passenger

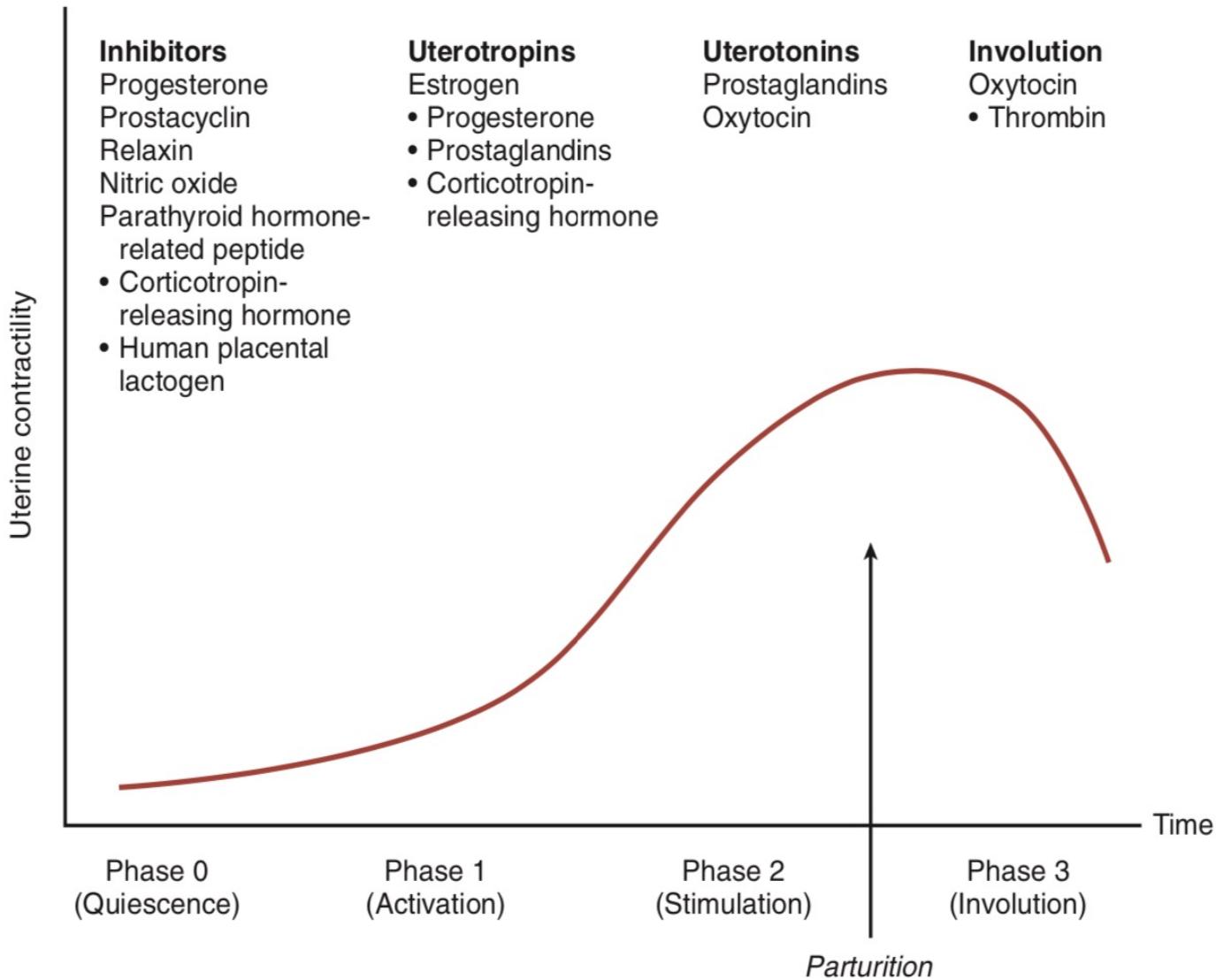
3 "P"

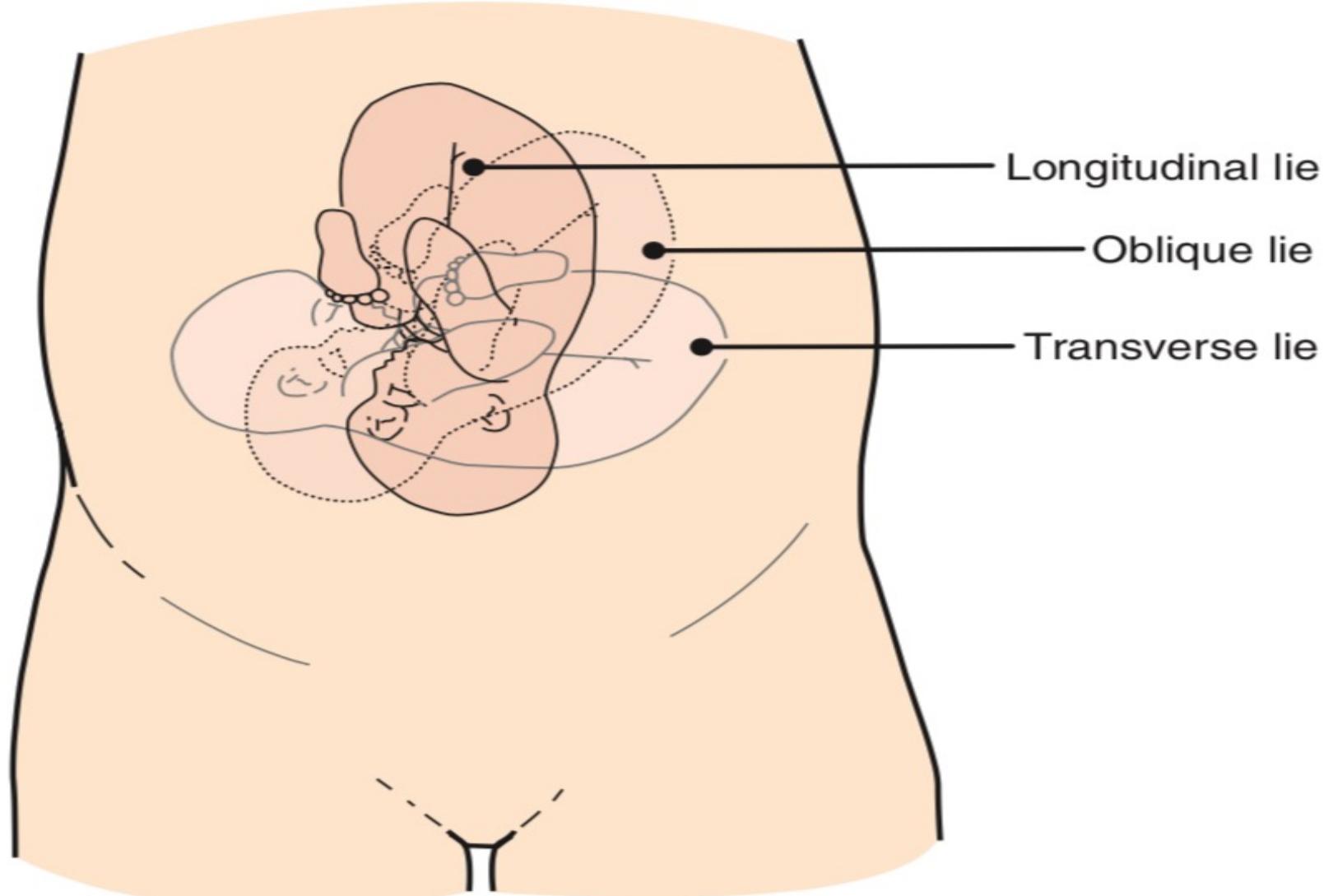


Power

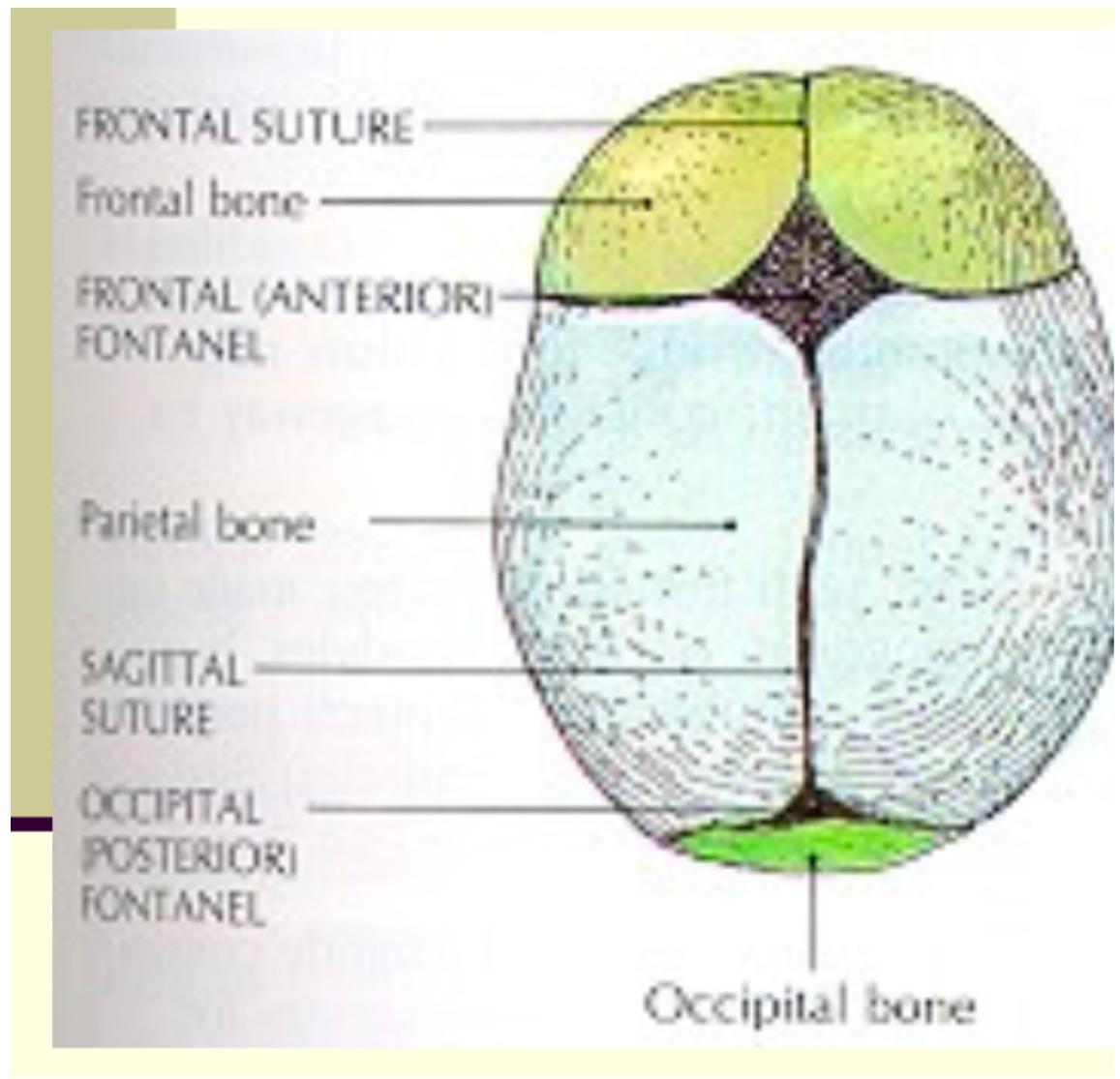


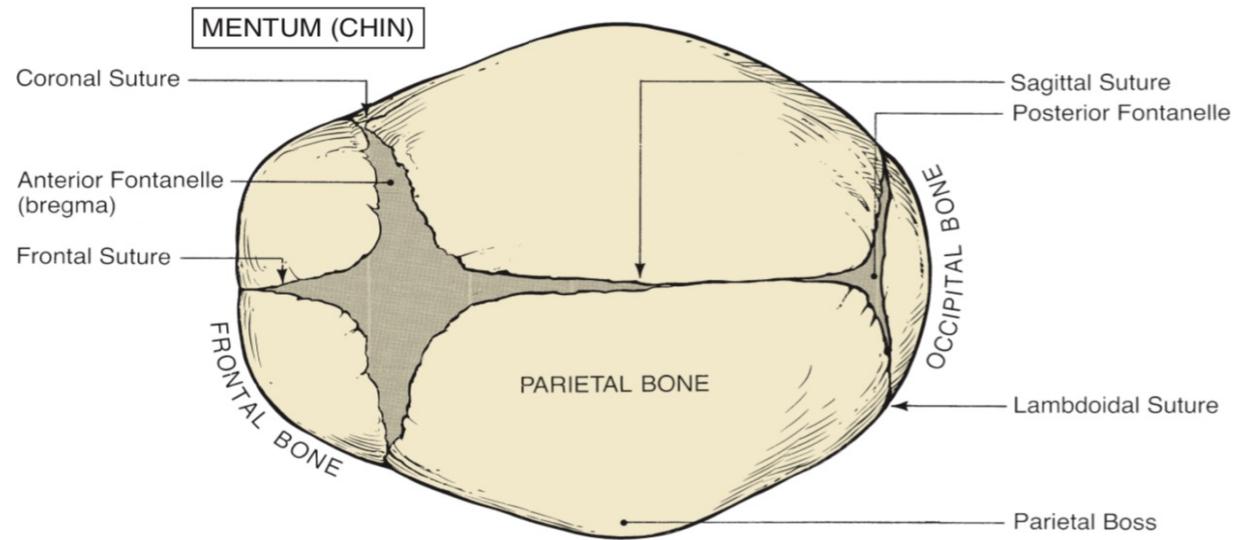
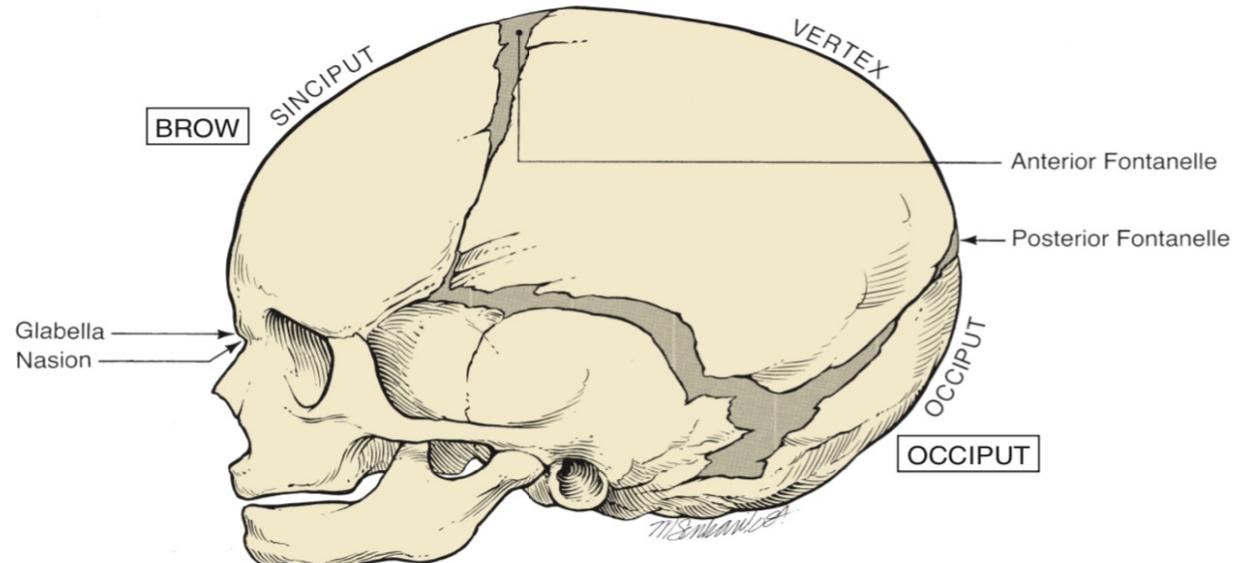
Passage

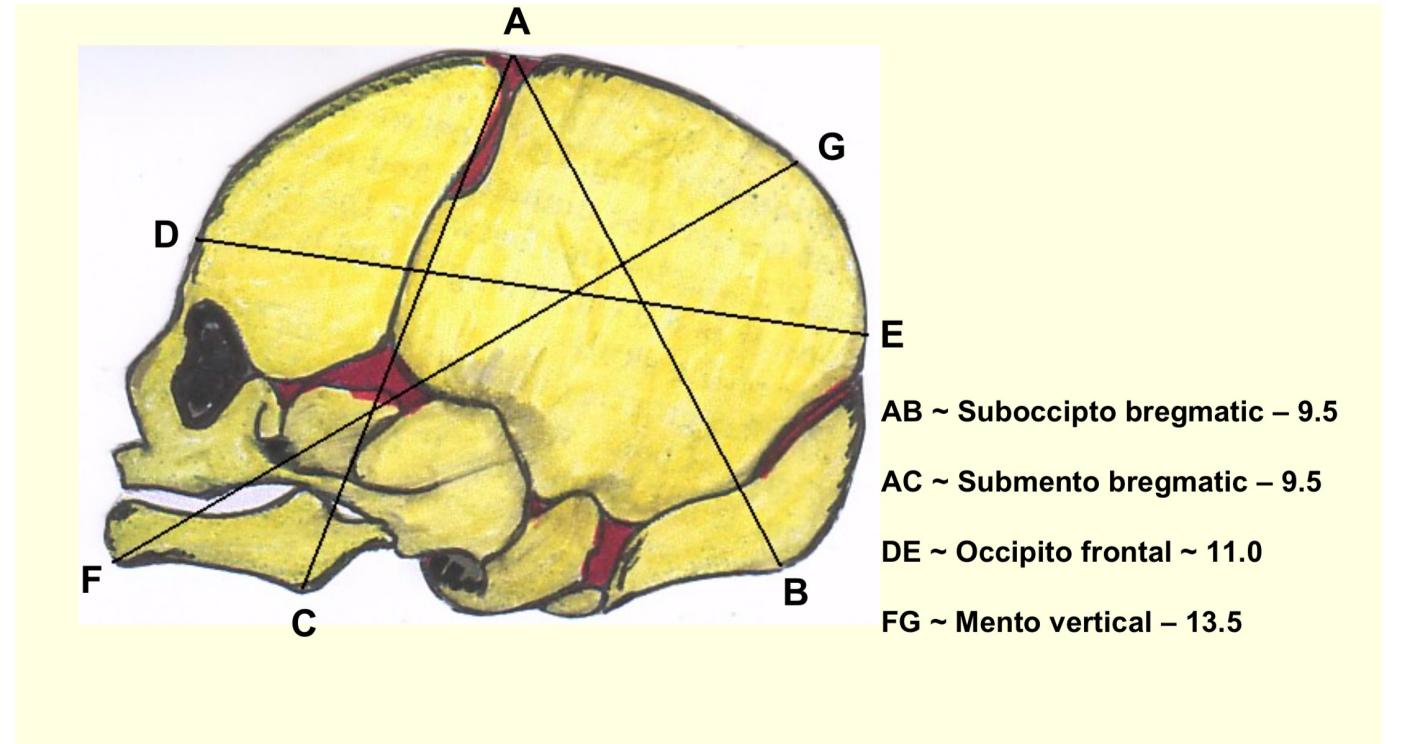
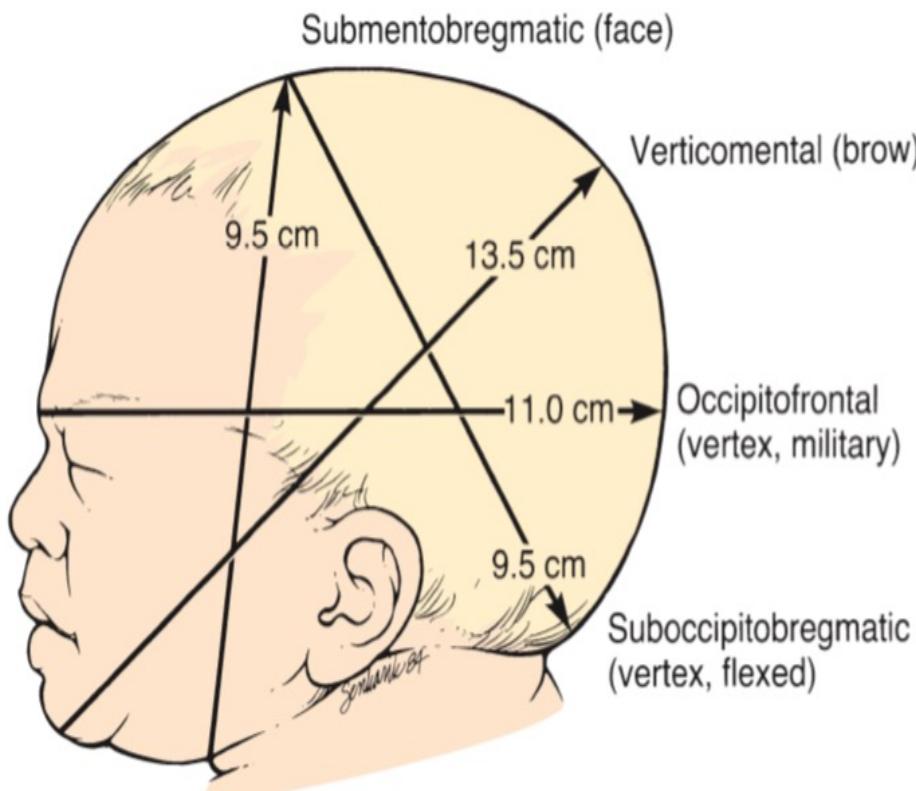


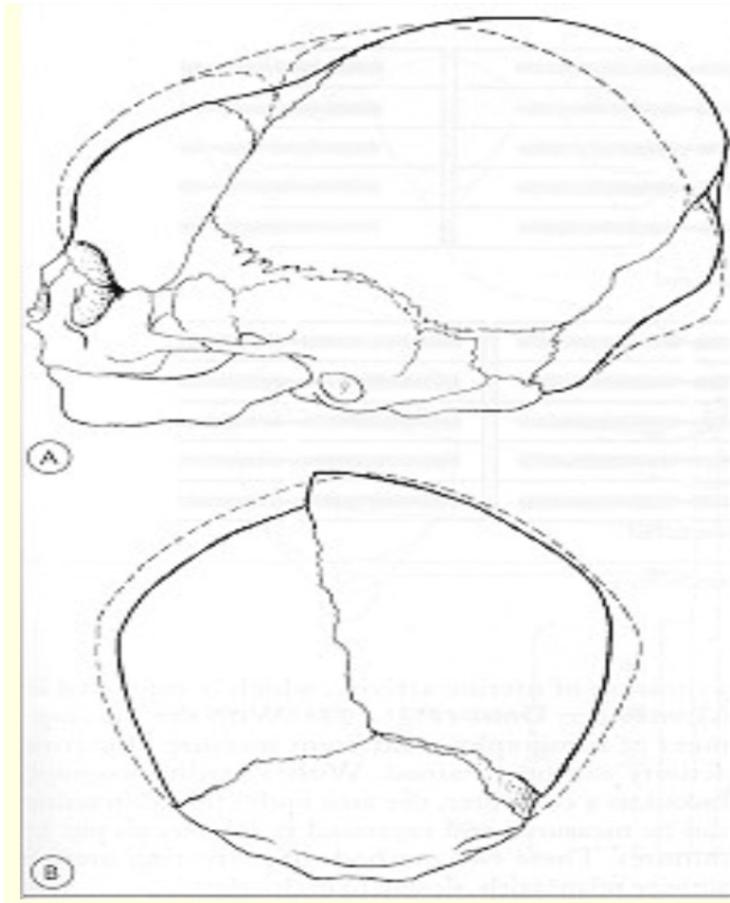


- **Sagittal suture:** - The sagittal suture lies between the parietal bones. It runs in an anteroposterior direction between the anterior and posterior fontanelles.
- **Coronal sutures:** - The suture uniting the parietal bones to the frontal bones is called the coronal suture. It's extend transversely from the anterior fontanel and lies between the parietal and frontal bone.
- **Frontal suture:** - The frontal suture is between the two frontal bones. It is an anterior continuation of the sagittal suture.
- **Lambdoidal suture:** - Is between the parietal and occipital bones.





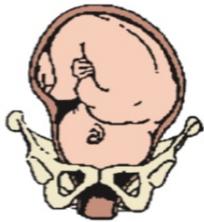




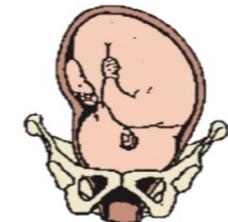
MOULDING' is the ability of the fetal head to change its shape and so to adapt itself to the unyielding maternal pelvis during the progress of labour.

This property is of the greatest value in the progress of labour.

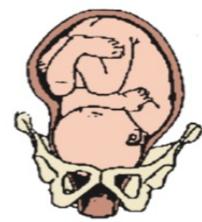
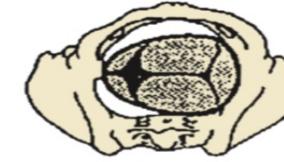
Illustration by



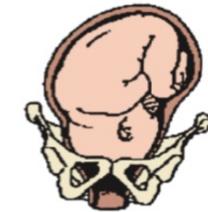
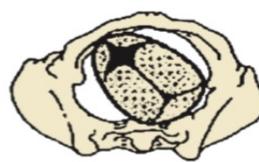
LOA



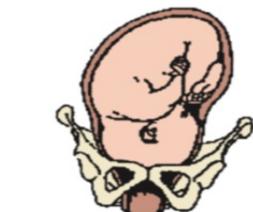
LOT



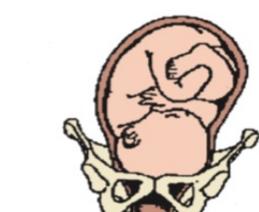
LOP



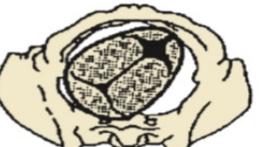
ROA

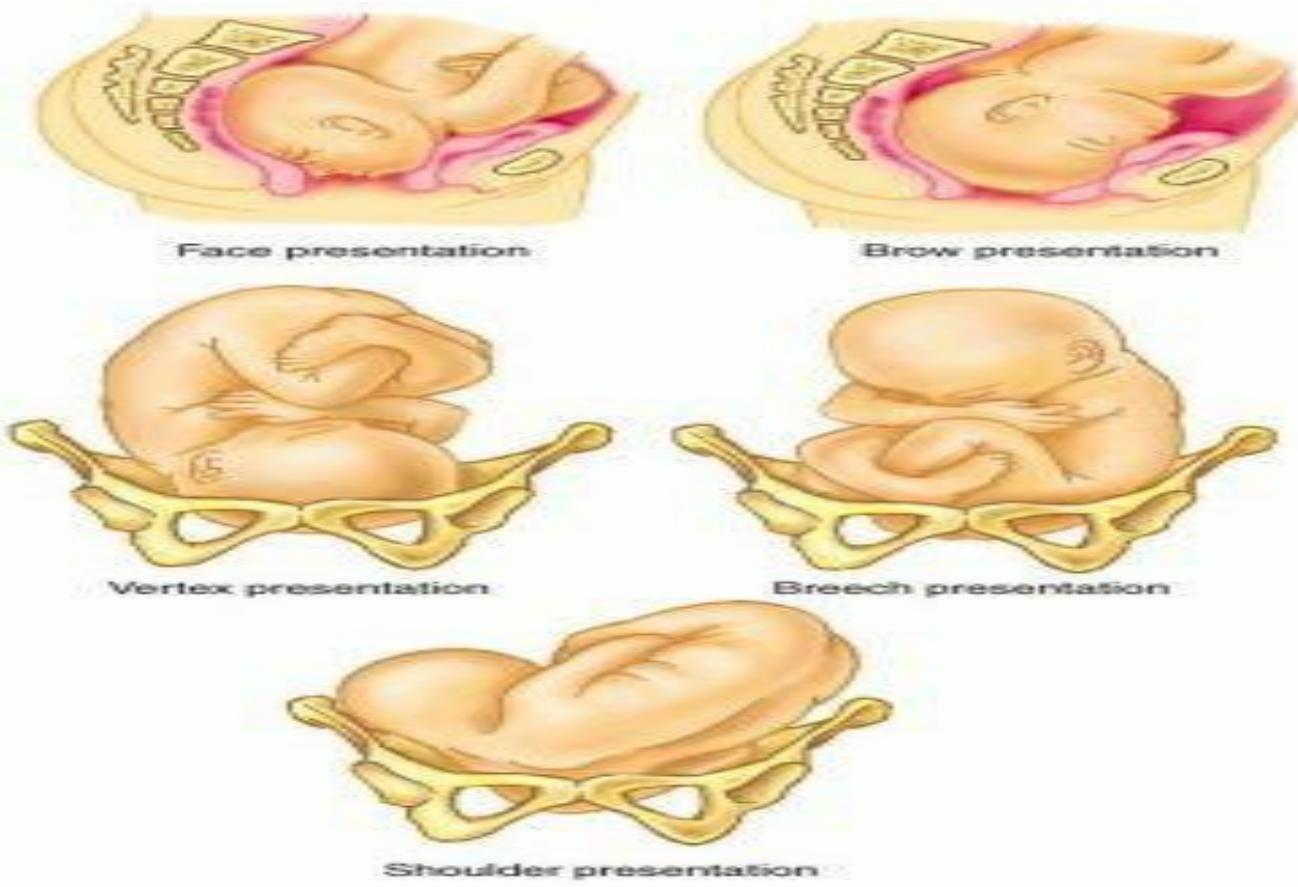


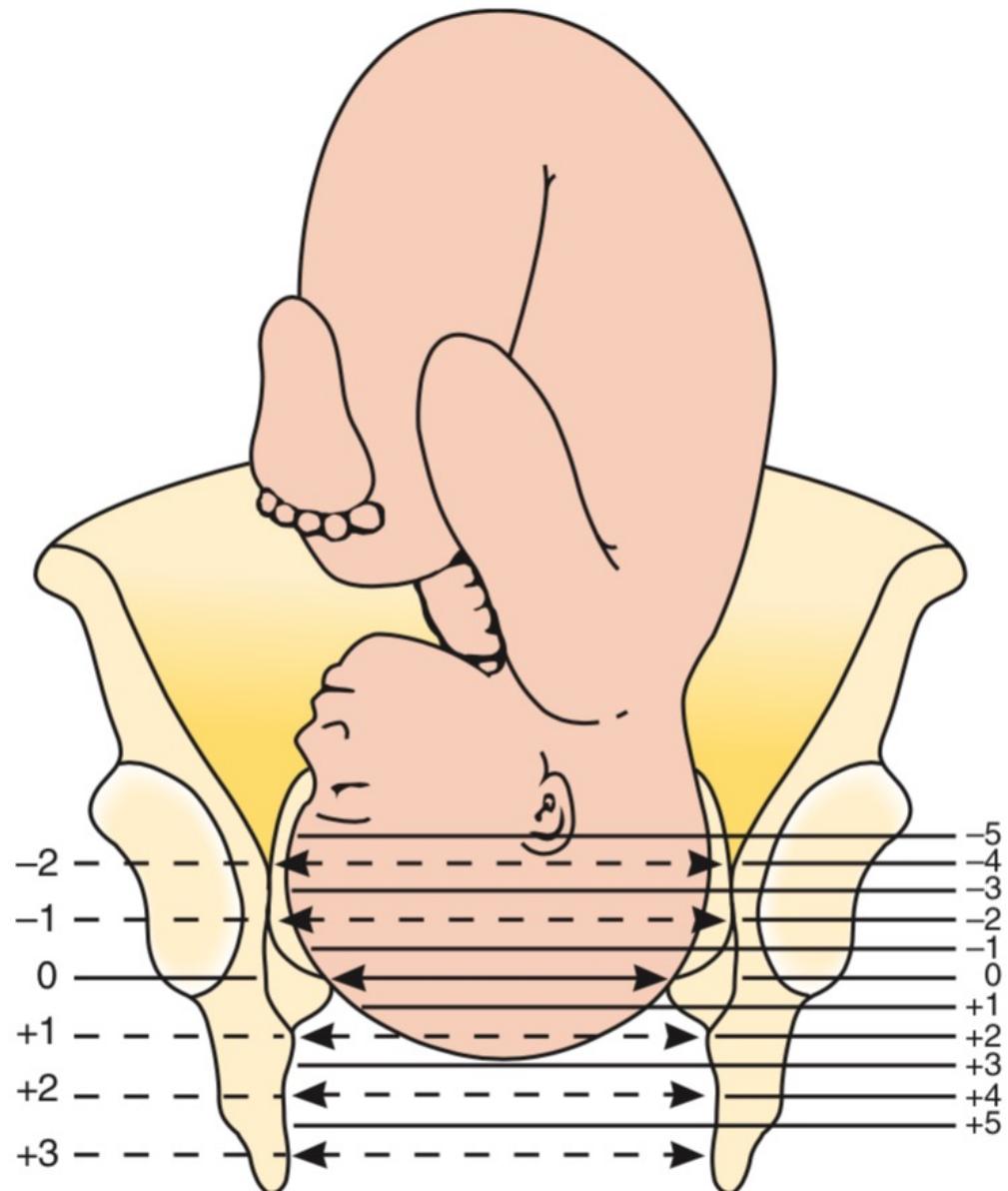
ROT



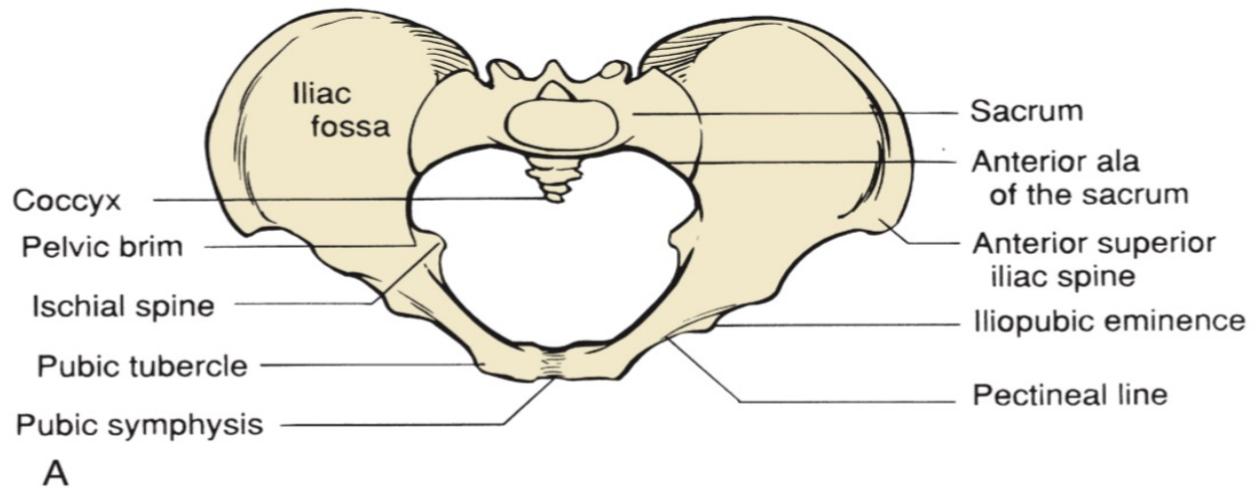
ROP



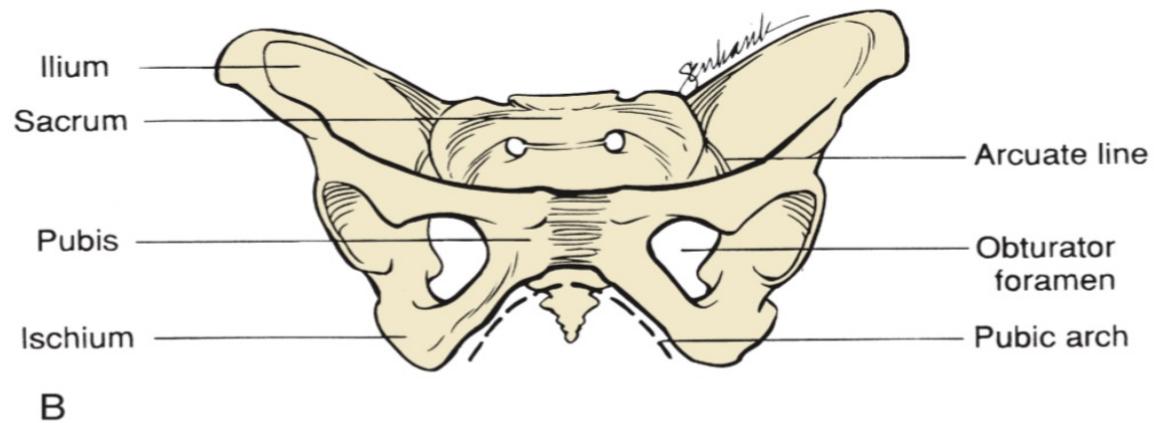




C

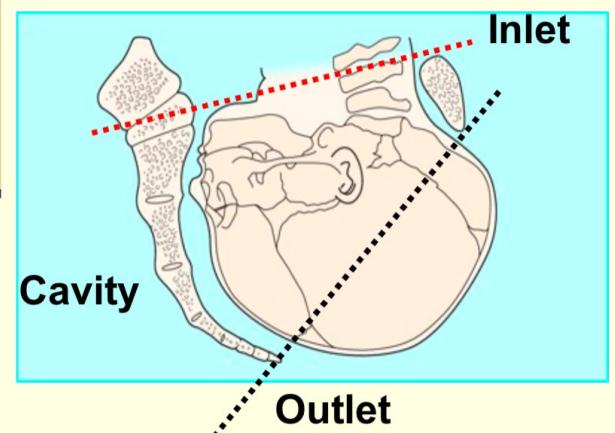


A



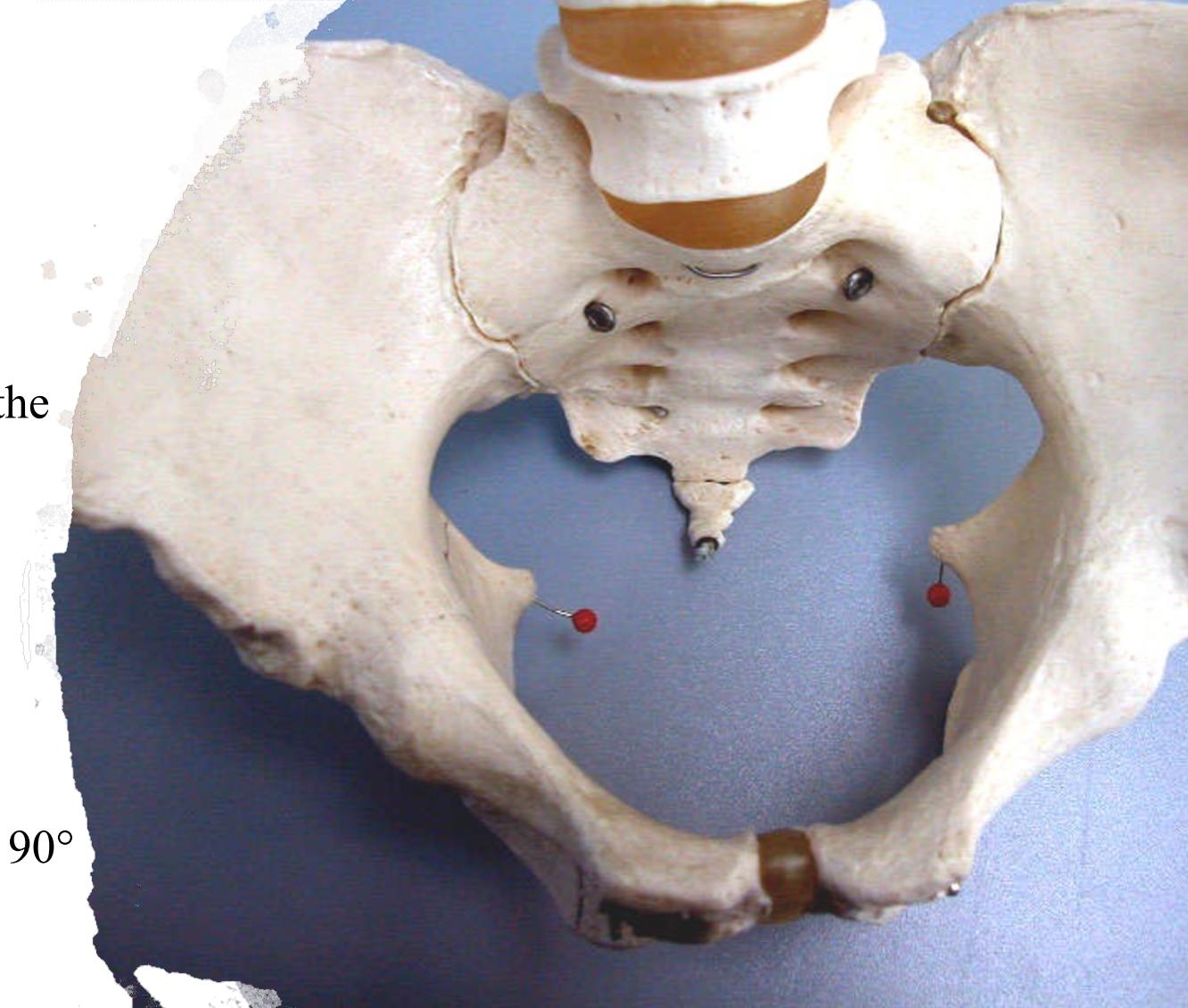
B

- The female pelvis provides the basic framework of the birth canal.
- The obstetric pelvis is divided into *false* and *true pelvis* by the pelvic brim or inlet
- The true pelvis is important, for it is through this confined space that the fetus must pass on its journey through the birth canal.
- The true pelvis is composed of *inlet*, *cavity* and *outlet*.
- Types of female pelvis – **gynaecoid**, anthropoid, android and platypelloid

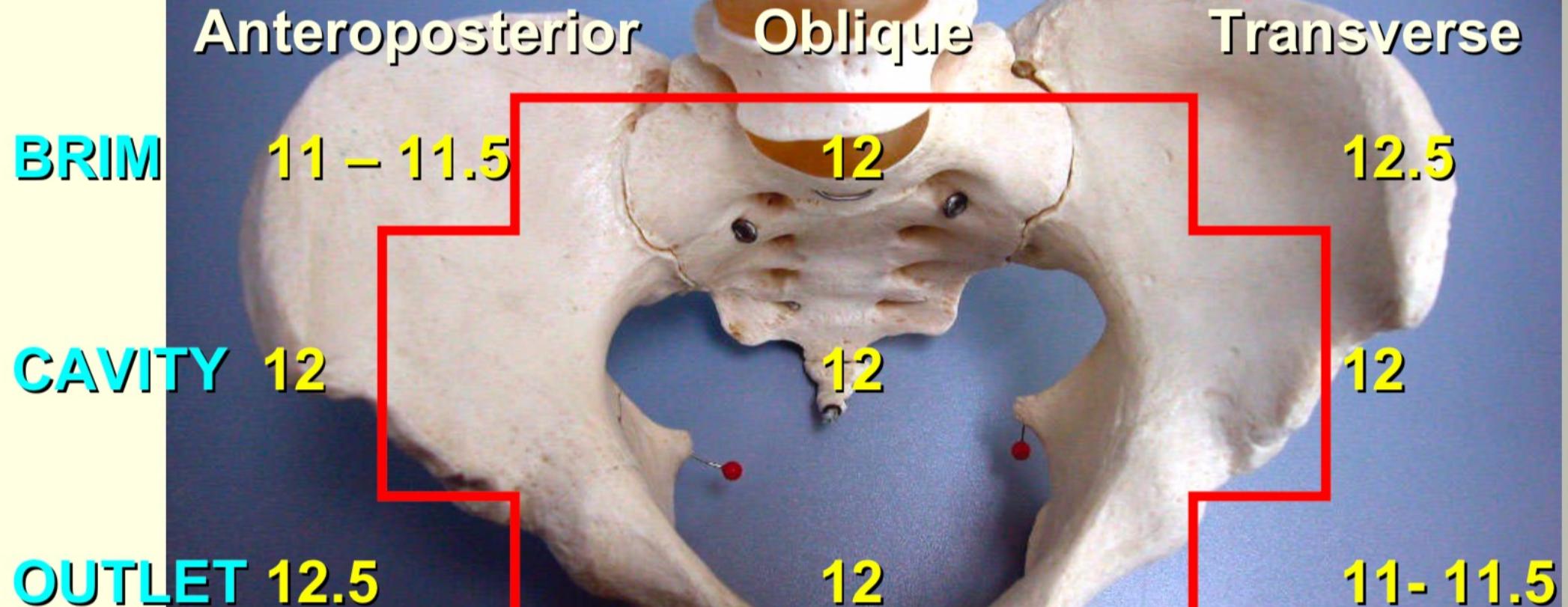


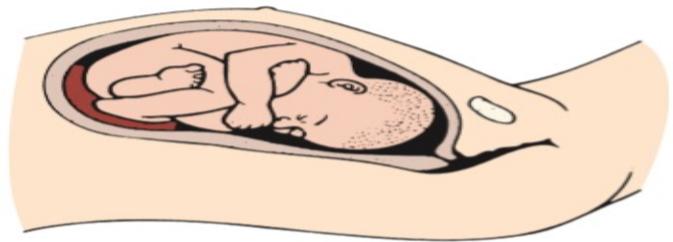
The ideal normal female gynaecoid pelvis:

- The sacral promontory is not prominent.
 - The transverse diameter is slightly longer than the anteroposterior.
 - The sidewalls are parallel and straight.
- The brim is slightly oval transversely.
- The sacrum has a good curve.
 - The pubic arch angle are wide, i.e. more than
 - The ischial spines are not prominent.
 - The sacrosciatic notches are wide. More than 90°
 - Inter tuberos diameter is wide

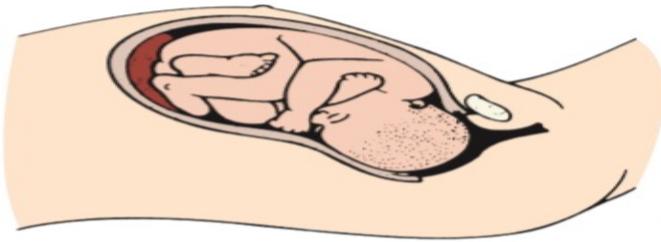


**Diameters
(cm)**

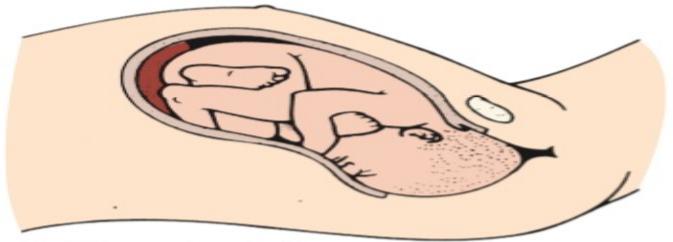




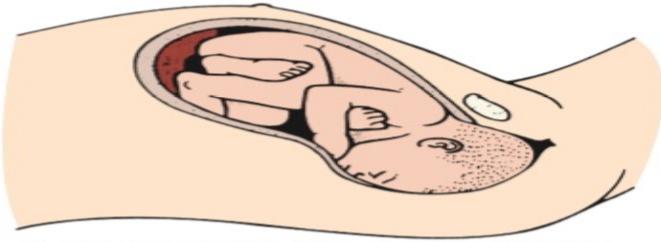
A Before engagement



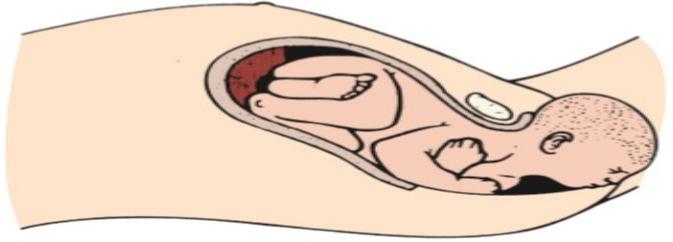
B Engagement, flexion, descent



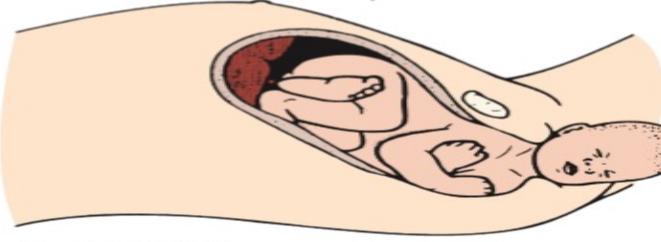
C Descent, rotation



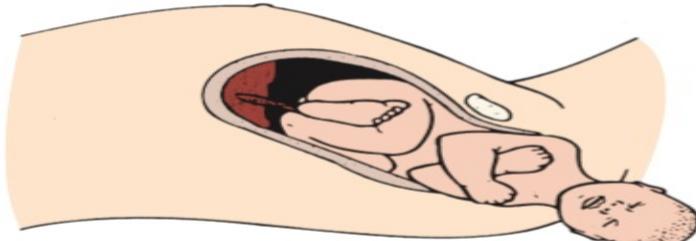
D Complete rotation, early extension



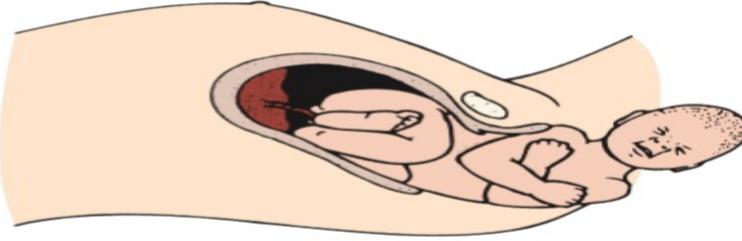
E Complete extension



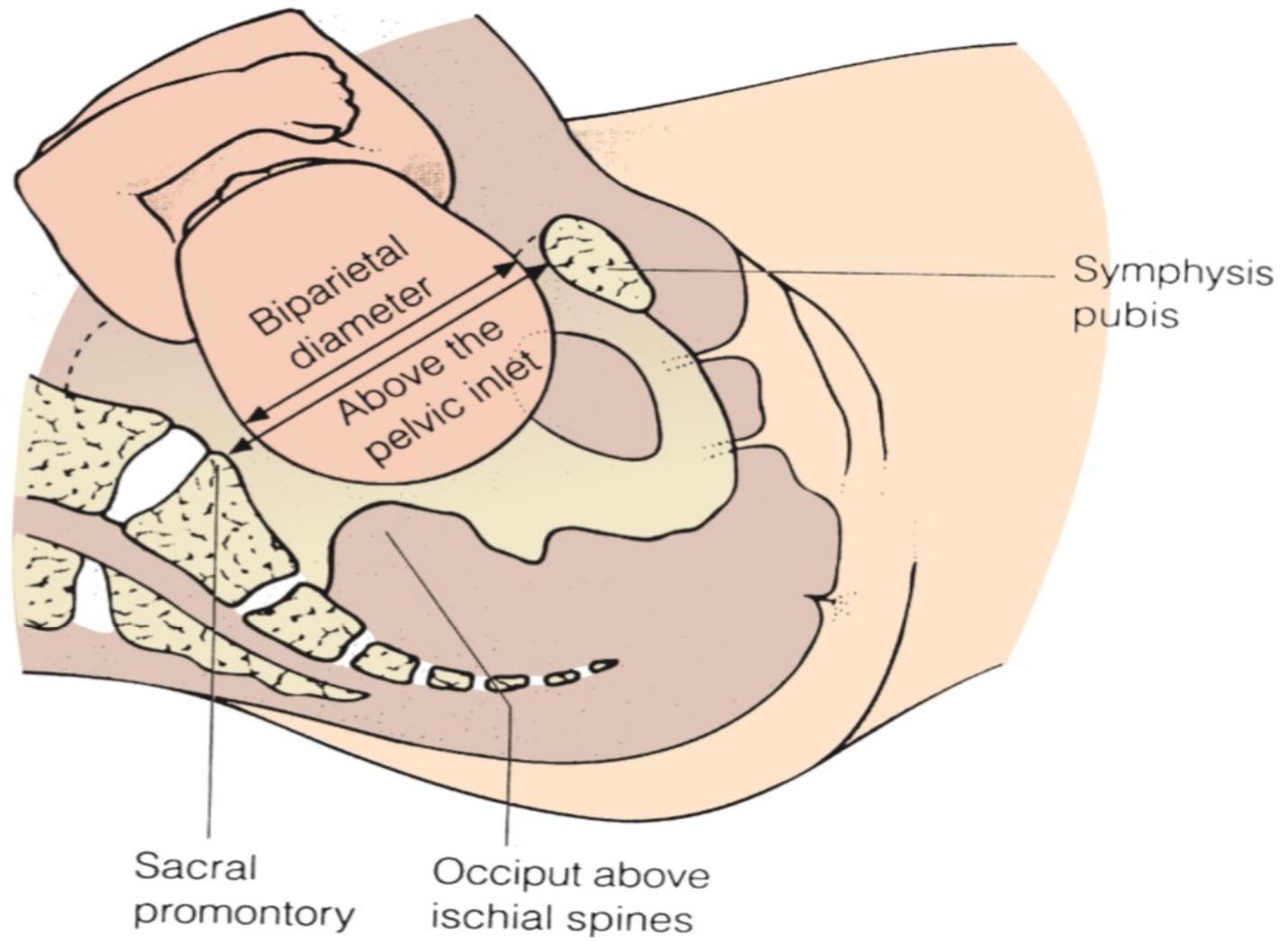
F Restitution



G Anterior shoulder delivery



H Posterior shoulder delivery



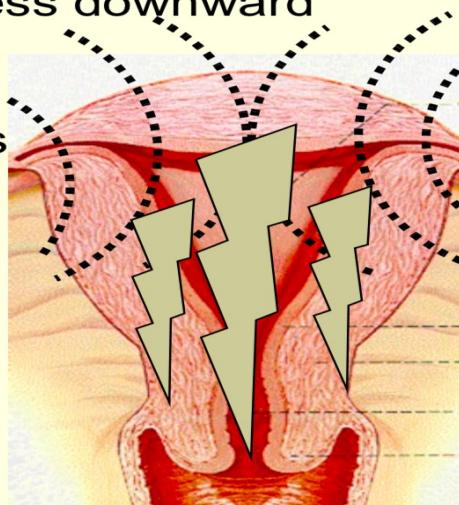
Power

Uterine contractions:

3. Initiate by pacemakers ~ uterotubal junction
4. Contraction waves meet at the fundus
5. Contraction waves progress downward



- Shortening of muscle fibres
- Retractions
- intra uterine pressure



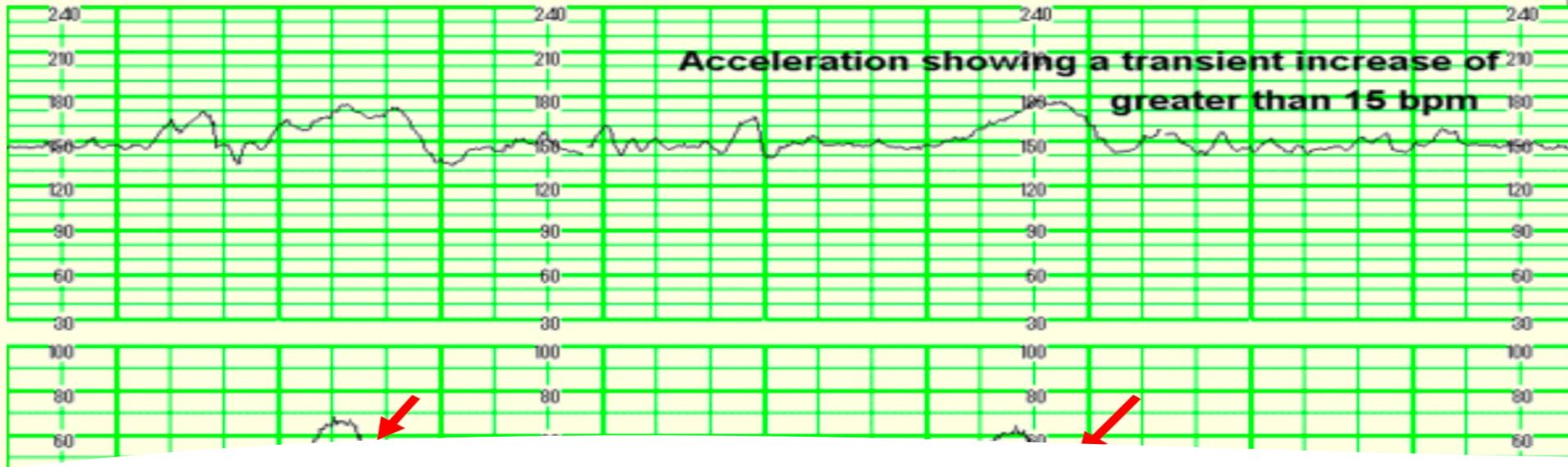
Additional force

“maternal pushing”



Intra abdominal pressure

→ EXPULSION OF THE FETUS ←

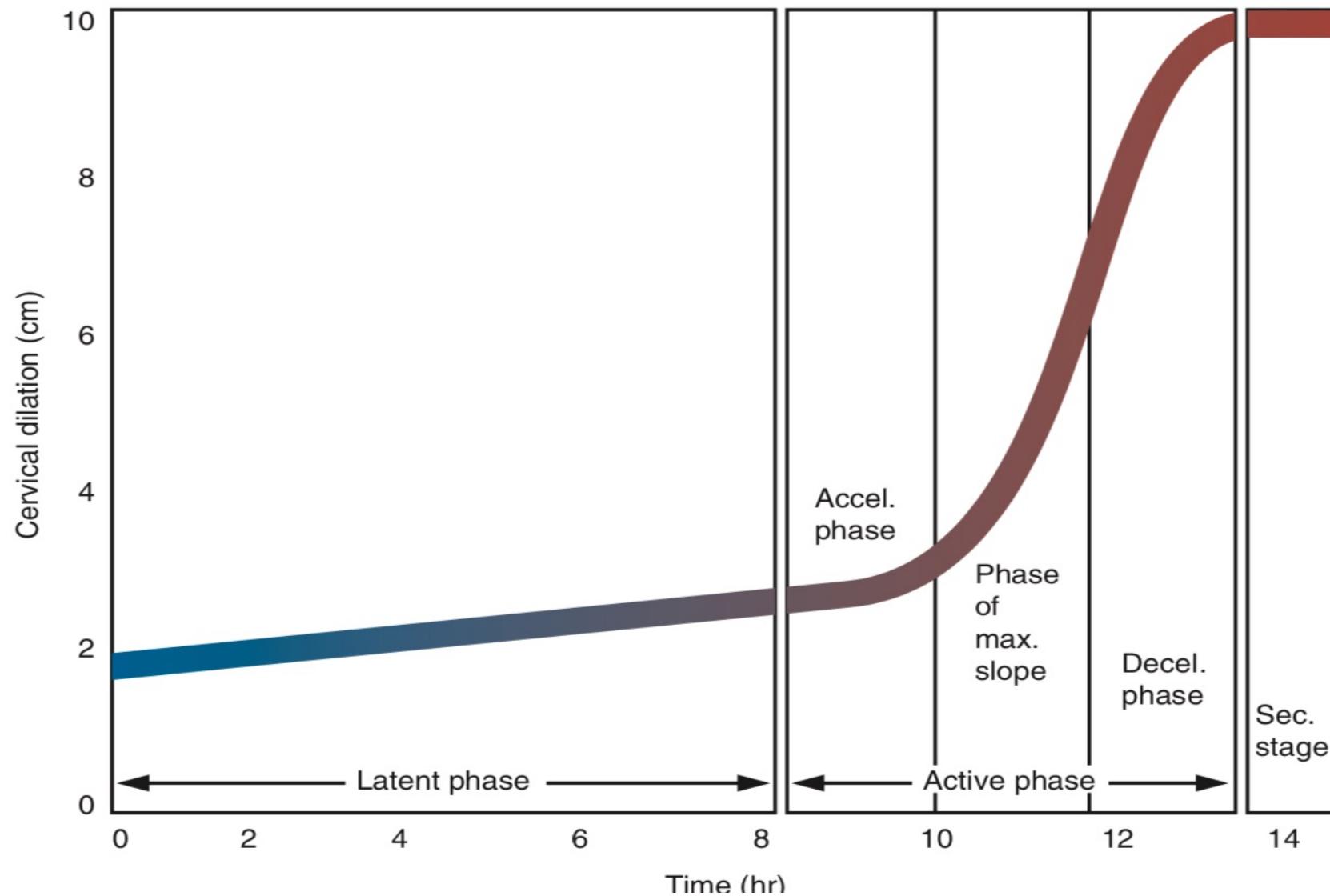


Normal contraction

Frequency ~ one in every 2 – 3 min with at least 1 minute interval

Intensity ~ strong (> 50 mmHg)

Duration ~ 45 – 60 sec



Symptoms

- Painful regular uterine contractions – as evidence by contraction at least one in ten minutes
- Show– as evidence by mucus mixed with blood
- Rupture of membranes – as evidence by leaking liquor
- Progressive shortening and dilatation of the cervix

Stages of labour

First stage	Second stage	Third stage
<p>It begins with the onset of true labour contractions and ends when the cervix is fully dilated (10 cm).</p> <p>Cervical effacement and dilatation occur in the first stage</p> <p>First stage of labour consists of two phases:- latent and active.</p> <p>The first stage of labour is the longest for both nulliparous and parous women.</p>	<p>The second stage of labour begins with complete dilatation of the cervix and ends with the birth of the baby.</p> <p>The duration is about 1 to 1 1/2 hours in nulliparas and about 30 to 45 minutes in parous women.</p>	<p>The third stage is that of separation and expulsion of placenta and membranes and also involves the control of bleeding.</p> <p>It begins after the birth of the baby and ends with the expulsion of the placenta and membranes.</p> <p>This is the shortest stage, lasting up to 30 minutes, with an average length of 5 to 10 minutes.</p> <p>There is no difference in duration for nulliparous and parous.</p>

Phases

Latent	Active
Begins with onset of contractions	Active process
Slow progress	Begins after 3 cm of cervical dilatation
Little cervical dilatation	Period of active cervical dilatation (average rate 1 cm/hr)
Progressive cervical effacement	S-shaped curve which is used to define progress of labour
Ends once the cervix reaches 3 cm dilatation	
Durations	
~ 8 hours for nulliparae ~ 6 hours for multiparae	<p>It has 3 component</p> <ul style="list-style-type: none">a) acceleration - slowb) maximum – fastc) deceleration - slow

Contractions



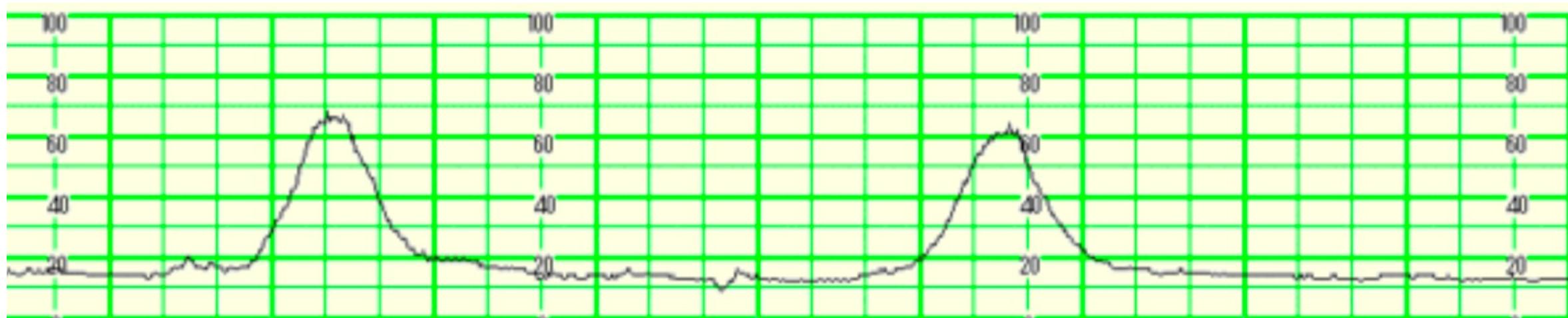
REGULAR



INCREASING IN
FREQUENCY



STRONGER



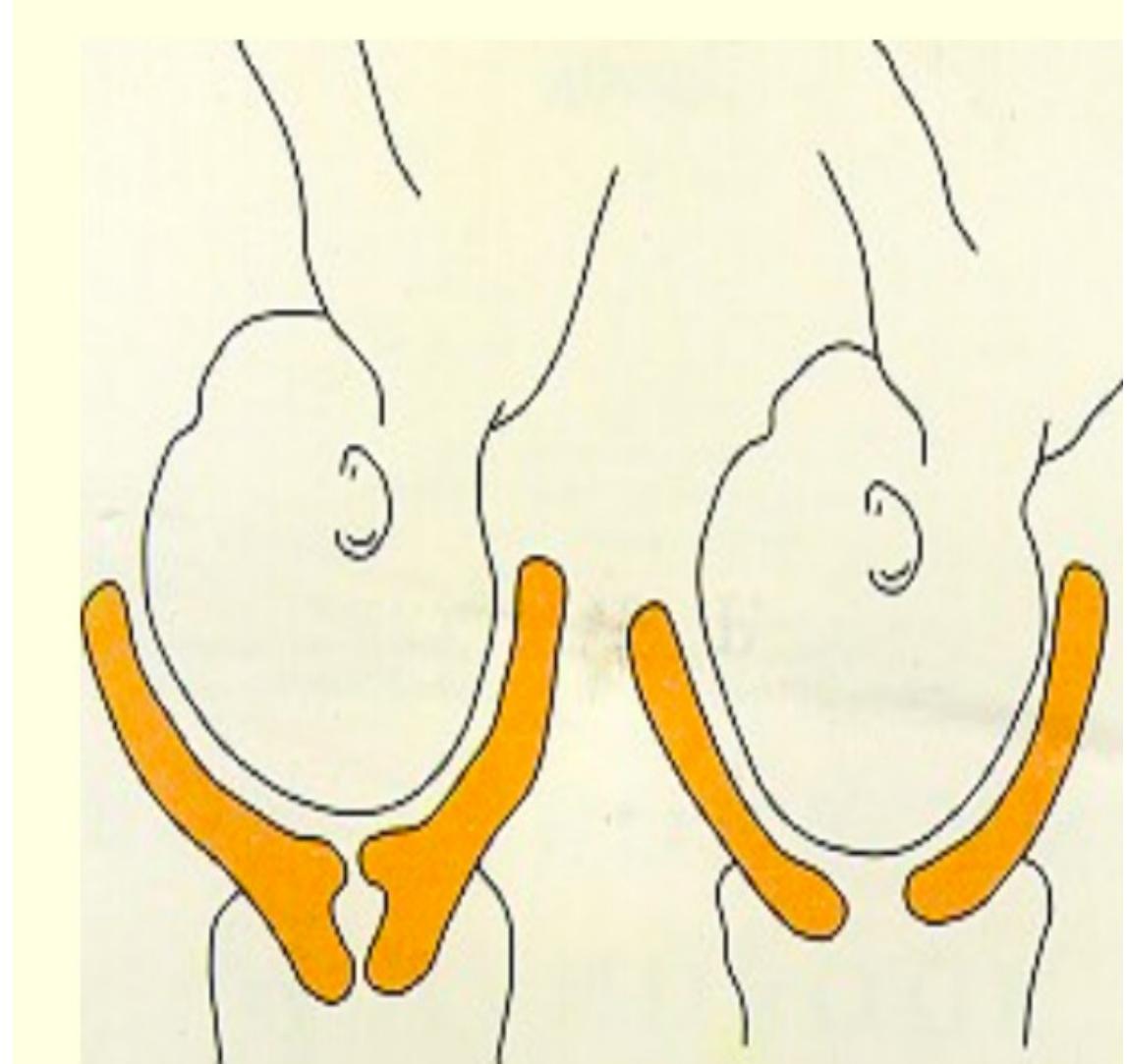
Cervical dilatation and effacement:

Causes of cervical dilatation:

- Contraction and retraction of uterine musculature
- Mechanical pressure by the bulging membrane (fore water)
- The descend of the presenting part

Phases of cervical dilatation

- Latent phase – the first 3 cm of dilatation; a slow process (8 hours in nulliparous and 3 hours in multiparous)
- Active phase – this is active process of cervical dilatation; the normal rate is 1 cm/hour



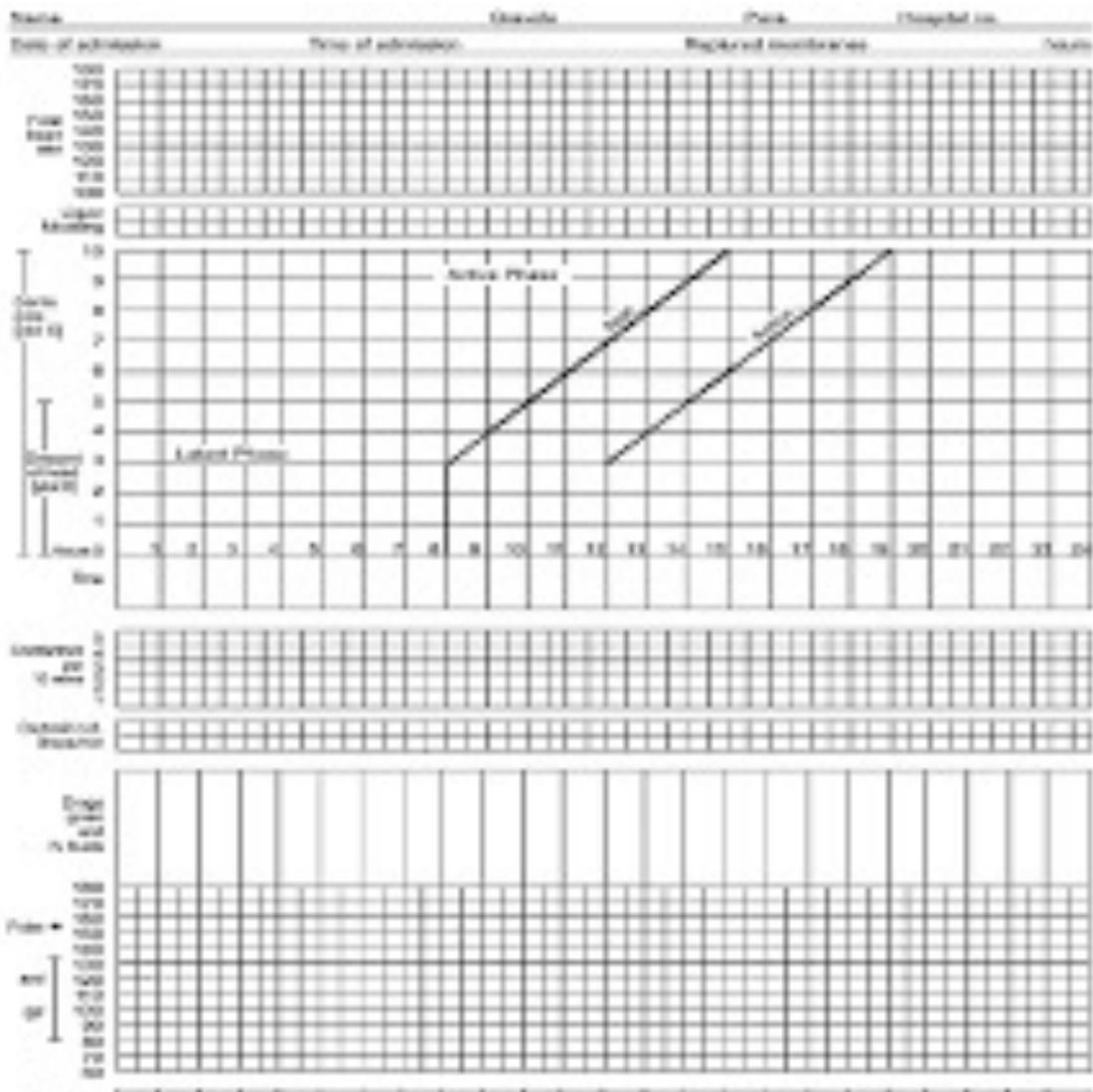
PROGRESS OF FIRST STAGE OF LABOUR

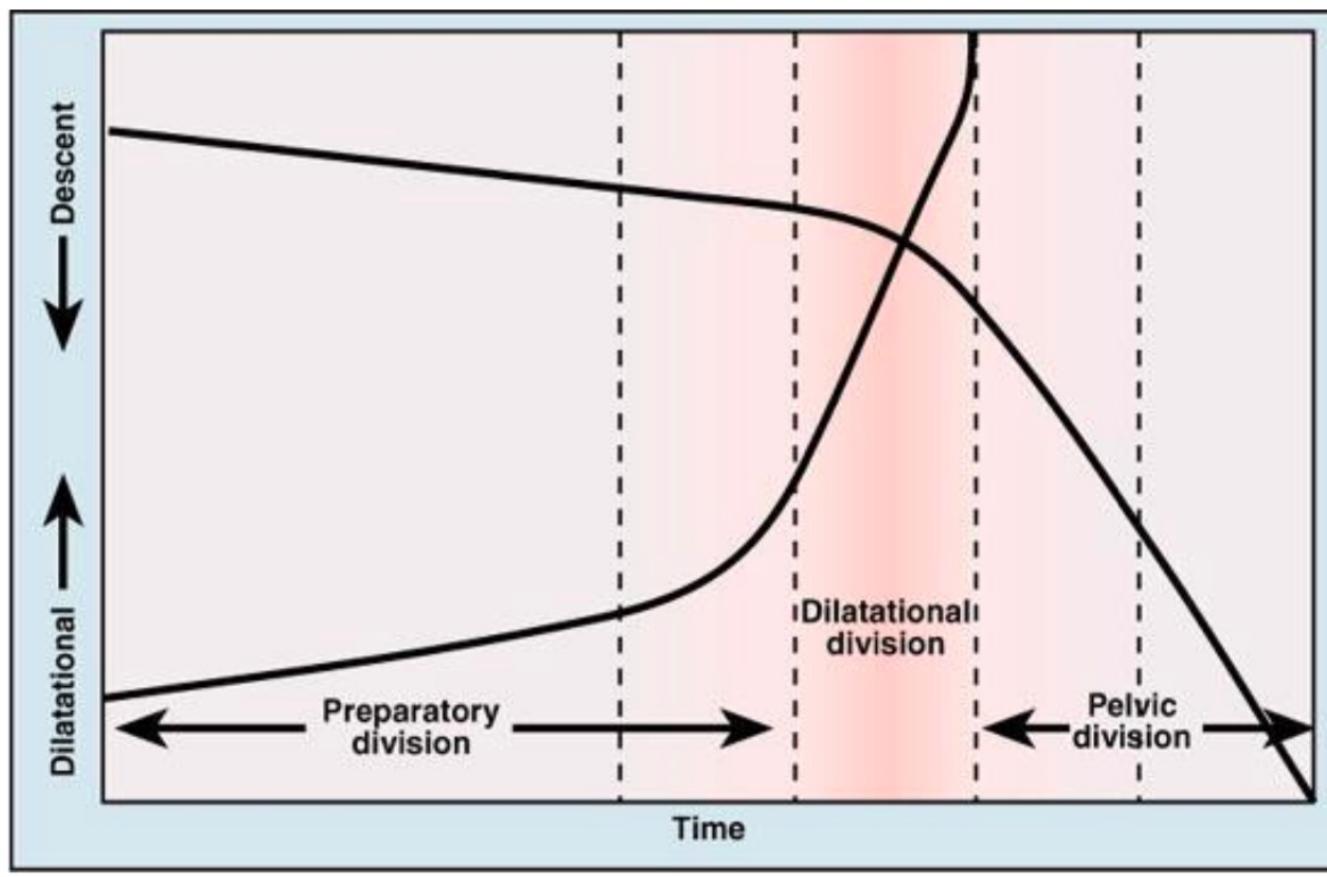
Findings suggestive of **satisfactory progress** in first stage of labour are:

- regular contractions of progressively increasing frequency and duration;
- rate of cervical dilatation at least 1 cm per hour during the active phase of labour (cervical dilatation on or to the left of alert line);

Findings suggestive of **unsatisfactory progress** in first stage of labour are:

- irregular and infrequent contractions after the latent phase;
- OR rate of cervical dilatation slower than 1 cm per hour during the active phase of labour (cervical dilatation to the right of alert line)



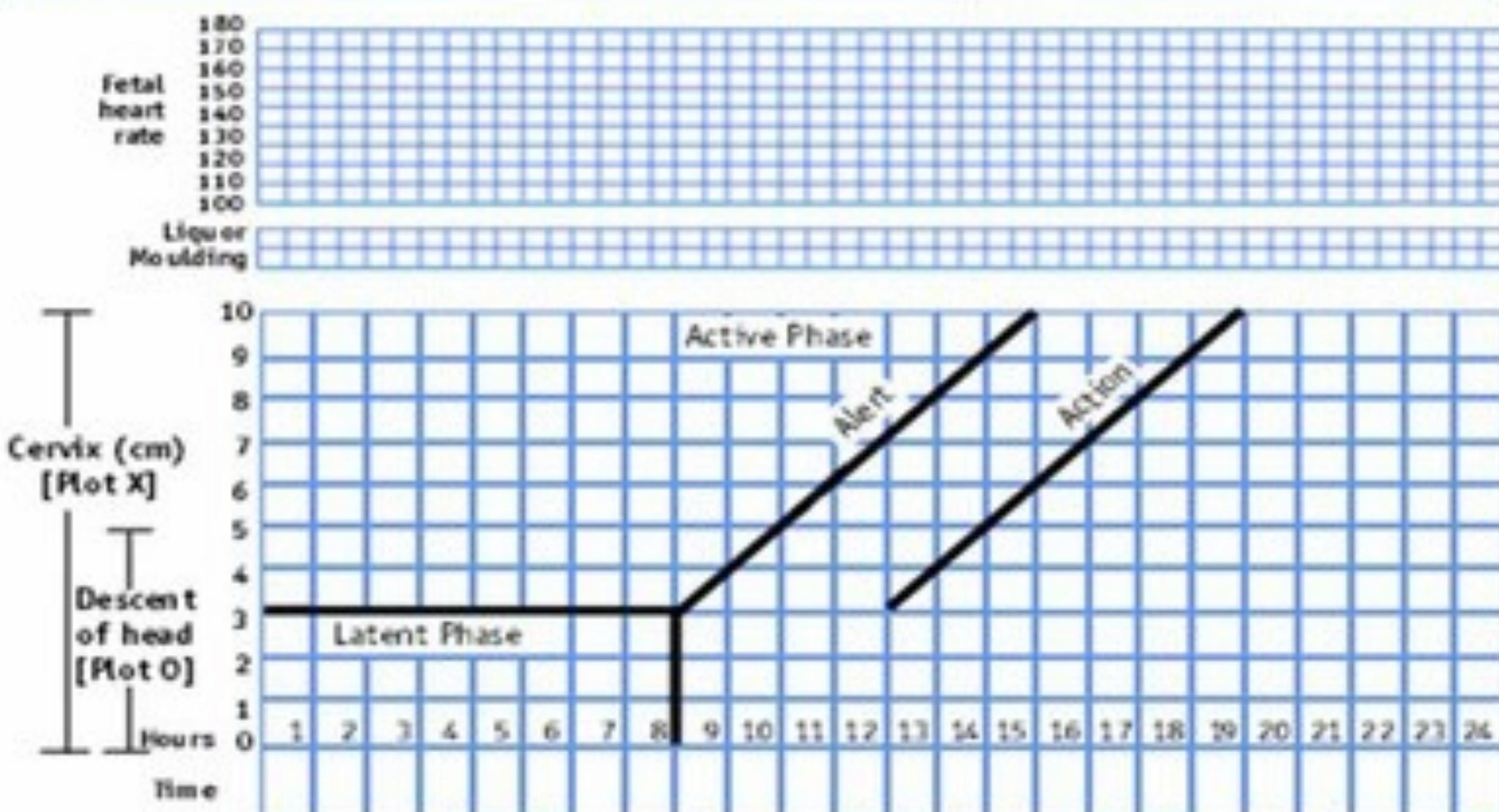


Date of admission

Time of admission

Ruptured membranes

Hours



Second stage

Begins with FULL DILATATION and ends with DELIVERY OF THE BABY.

It have TWO Phases

- a) *Propulsive phase – from full dilatation until presenting part has descended to the pelvic floor*
- b) *Expulsive phase which ends with the delivery of the baby*

Features of expulsive phase

- **mother's irresistible desire to bear down**
- **2) distension of perineum**
- **dilatation of the anus**

Average length

- *Primigravidae – 40 minutes*
- *Multigravidae – 20 minutes*

Findings suggestive of satisfactory progress in second stage of labour are:

- steady descent of fetus through birth canal
- onset of expulsive (pushing) phase.

Findings suggestive of unsatisfactory progress in second stage of labour are:

- lack of descent of fetus through birth canal
- failure of expulsion during the late (expulsive) phase.

Third stage

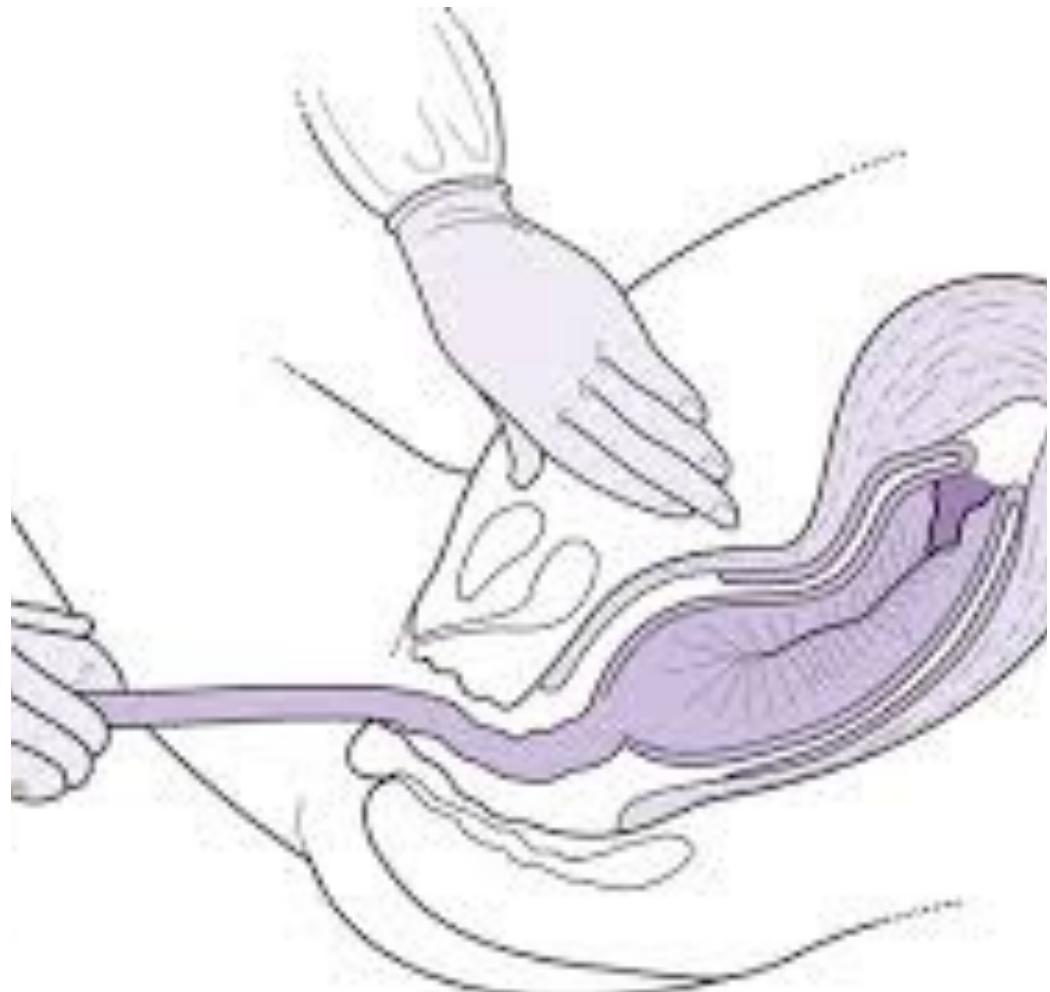
Begins after DELIVERY of the baby and ends with DELIVERY OF THE PLACENTA / MEMBRANES.

Duration- usually 15 minutes or less (if actively managed).

It have TWO Phases

- *Separation phase*
- *Expulsion phase*

Average blood loss – 150 to 250 ml.



	FIRST STAGE	SECOND STAGE	THIRD STAGE
ON THE MOTHER	Minimal effects	Pulse increases Systolic BP slightly increased due to pain and anxiety Minor injuries to the birth canal	Blood loss from the placental site (200 ml) Blood loss from laceration and perineum (100 ml)
ON THE FETUS	Moulding – overlapping of the vault bones Caput succedaneum – it is a soft swelling of the most dependent part of the fetal head		



Management of labour

The principles include:

- Diagnosis of labour
- Monitoring the progress of labour
- Ensuring maternal well-being
- Ensuring fetal well-being.

On admission:

When the women presents at hospital, the woman's antenatal record is reviewed to discover whether there have been any abnormalities during her pregnancy.

When there are no records of antenatal care a complete history must be taken.

General examination of the mother

- General conditions – evaluate the mother general health condition.
- Look for pallor, edema, abdominal scar (LSCS) and maternal height.
- Vital signs – Blood pressure, pulse, respiration and temperature are taken and recorded
- Heart and lungs

Urine analysis – for protein, sugar and ketones

Abdominal examination:

- a) A detailed abdominal examination should be carried out and recorded.
- b) Determine the presentation and position of the fetus and also the engagement
- c) Auscultate the fetal heart
- d) Evaluate the uterine contraction

Vaginal examination – the purpose is to

- a) To make a positive diagnosis of labour
- b) To make a positive identification of presentation
- c) To determine whether the fetal head is engaged in case of doubt
- d) To ascertain whether the fore waters have ruptured or to rupture them artificially
- e) To exclude cord prolapse after rupture of the fore waters
- f) To confirm the degree of cervical dilatation and position of the presenting part
- g) To assess progress of labour.
- h) To assess the adequacy of the pelvis.

- **Bowel preparation:**

If there has been no bowel action for 24 hours or the rectum feels loaded on vaginal examination an enema is given.

- **Bladder care**

A full bladder may initially prevent the fetal head from entering the pelvic brim and later impede descent of the fetal head.

- It will also inhibit effective uterine action.

- The woman should be encouraged to empty her bladder every 1 1/2 - 2 hours during labour.

- The quantity of urine passed should be measured and recorded and a specimen obtained for testing.

- **Nutrition in early labour**

- No food is permitted after labour is established – to prevent regurgitation and aspiration

- It is important to maintain adequate hydration - via intravenous routes

- **Position of labouring mother:**

As long as the patient is healthy, the presentation normal, the presenting part engaged, and the fetus in good condition, the patient may walk about or may be in bed, as she wishes

- **Monitoring the progress of labour**

Once labour has become established, all events during labour should be recorded on a partogram.

- The well-being of the fetus

- The well-being of the mother

- The progress of the labour

- **Pain relief**

When the pains are severe an analgesic preparation may be given.

- Opiate drugs – e.g. Pethidine given intramuscularly every 4 hour

- Inhalational analgesia – e.g. Entonox

- Epidural analgesia

Fetal
surveillance
during
labor



Intermittent Auscultation

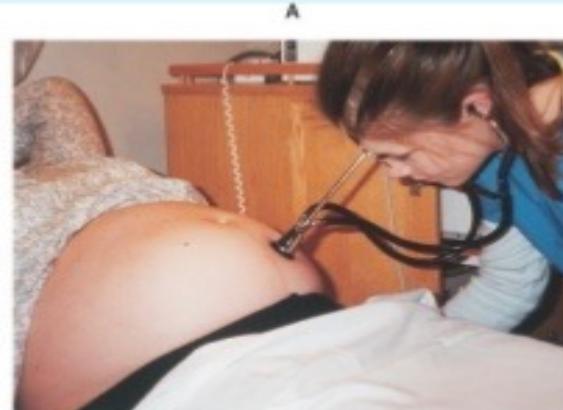
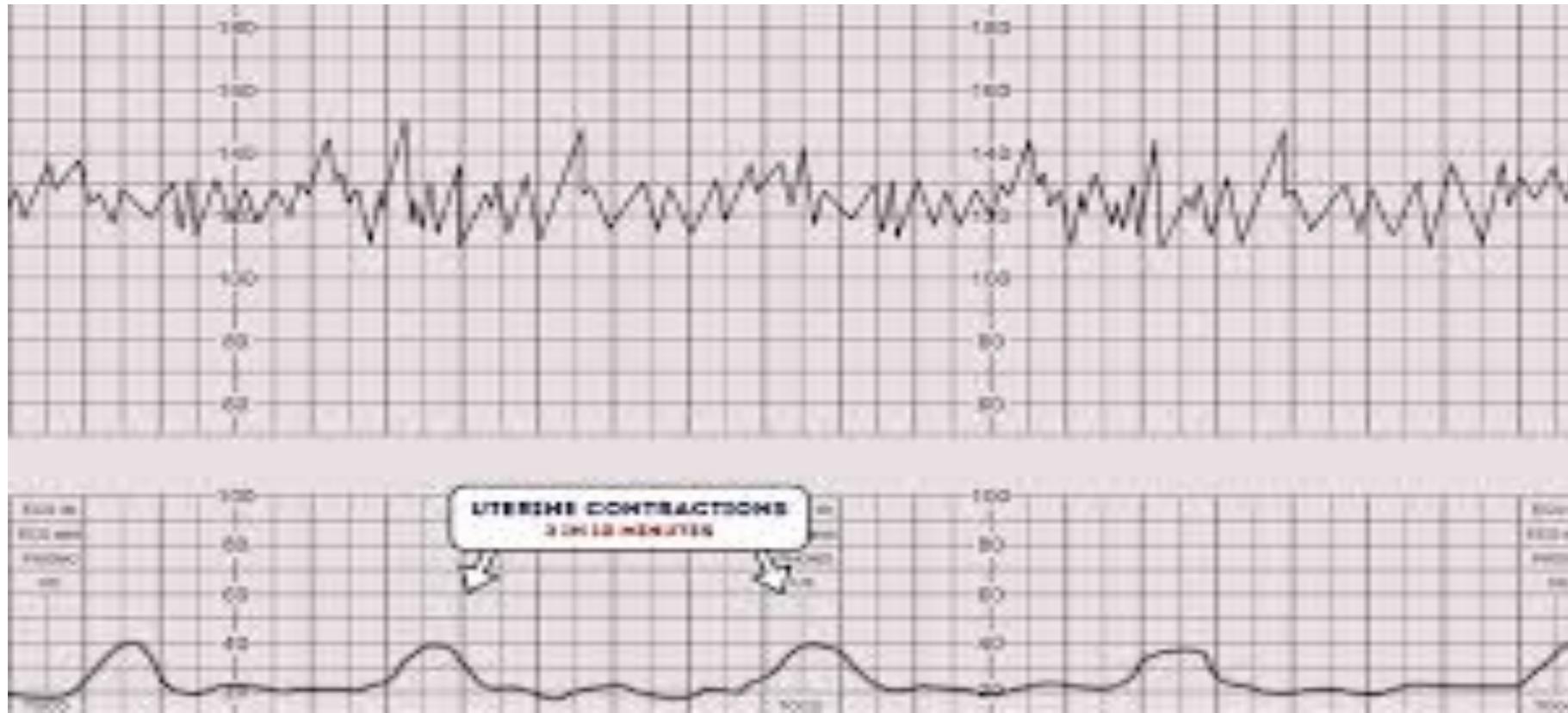


Fig. 16-8A Detecting fetal heart rate with fetoscope. (Courtesy Dee Lowdermilk.)
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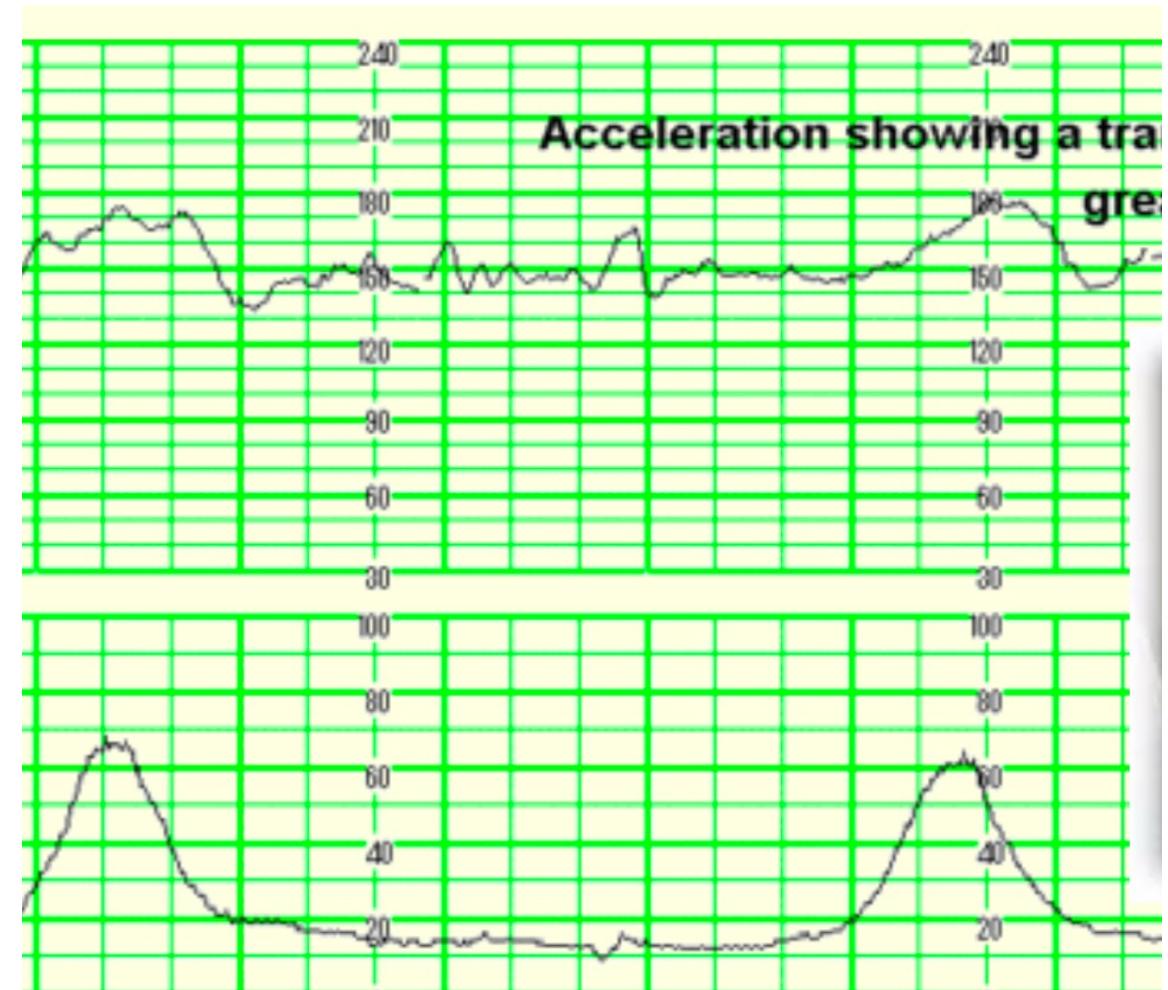


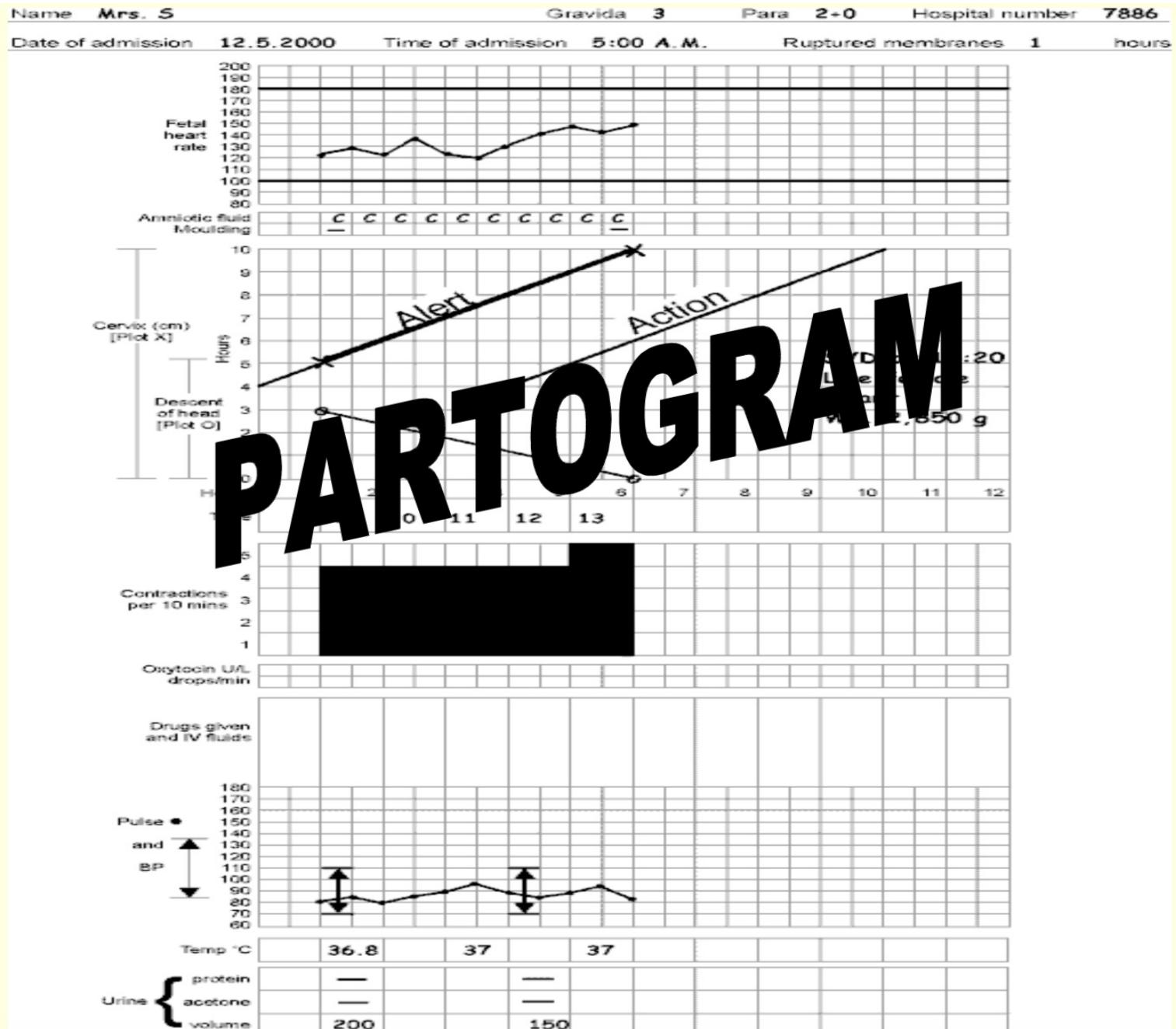
Fig. 16-8B Detecting fetal heart rate with Doppler ultrasound stethoscope.
(Courtesy Dee Lowdermilk.)
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How To Monitor The Fetal Heart Rate?

- Auscultation methods
- Electronic monitoring ~ CTG





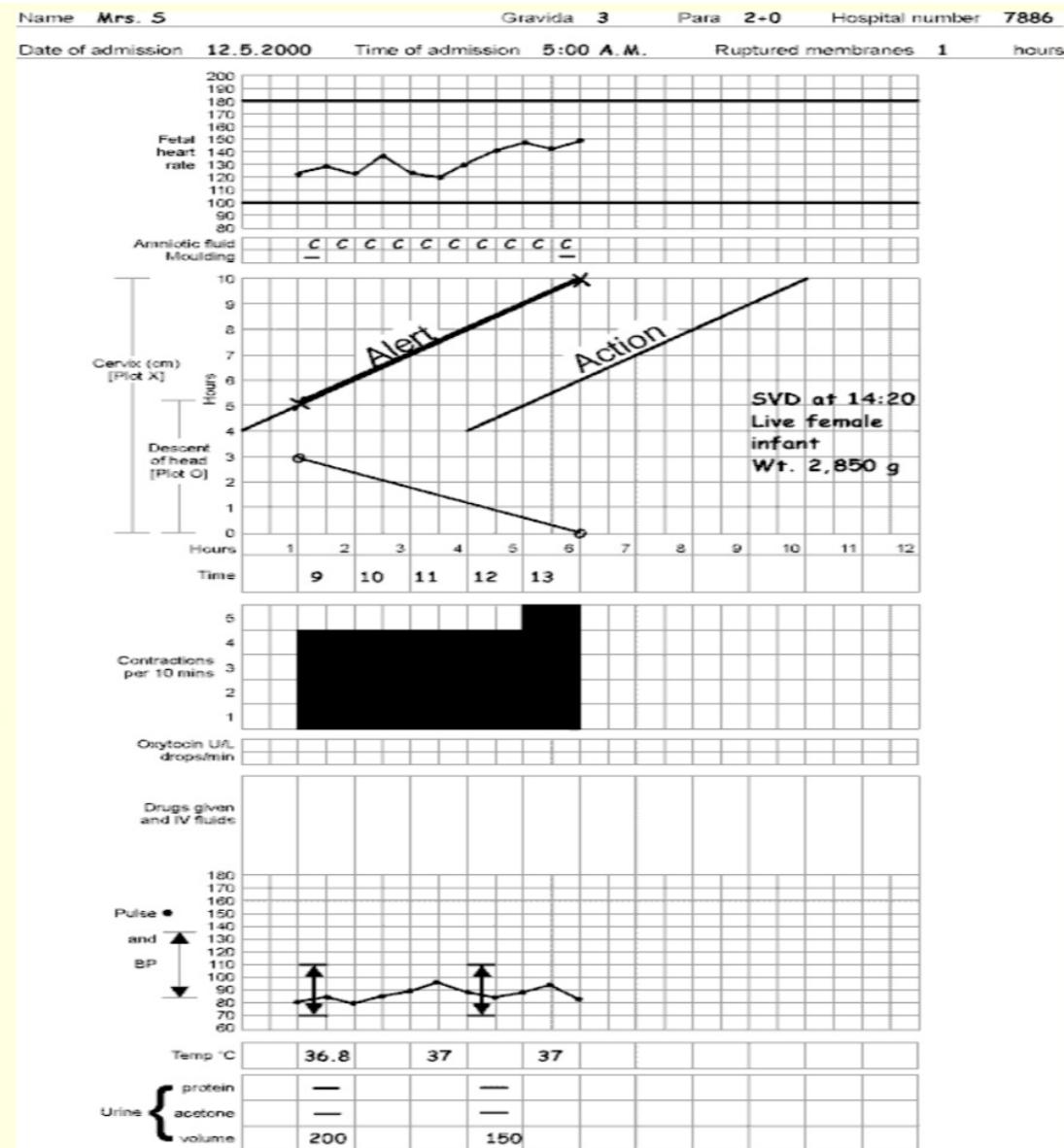
PATIENT INFORMATION

FETAL INFORMATION ~ fetal well being

LABOUR INFORMATION ~ Dilatation ~ Descent ~ Contraction

MEDICATIONS

MATERNAL INFORMATION ~ Well being



Patient information: Fill out name, gravida, para, hospital number, date and time of admission and time of ruptured membranes.

Fetal heart rate: Record every half hour.

Amniotic fluid: Record the colour of amniotic fluid at every vaginal examination:

I: membranes intact;

C: membranes ruptured, clear fluid;

M: meconium-stained fluid;

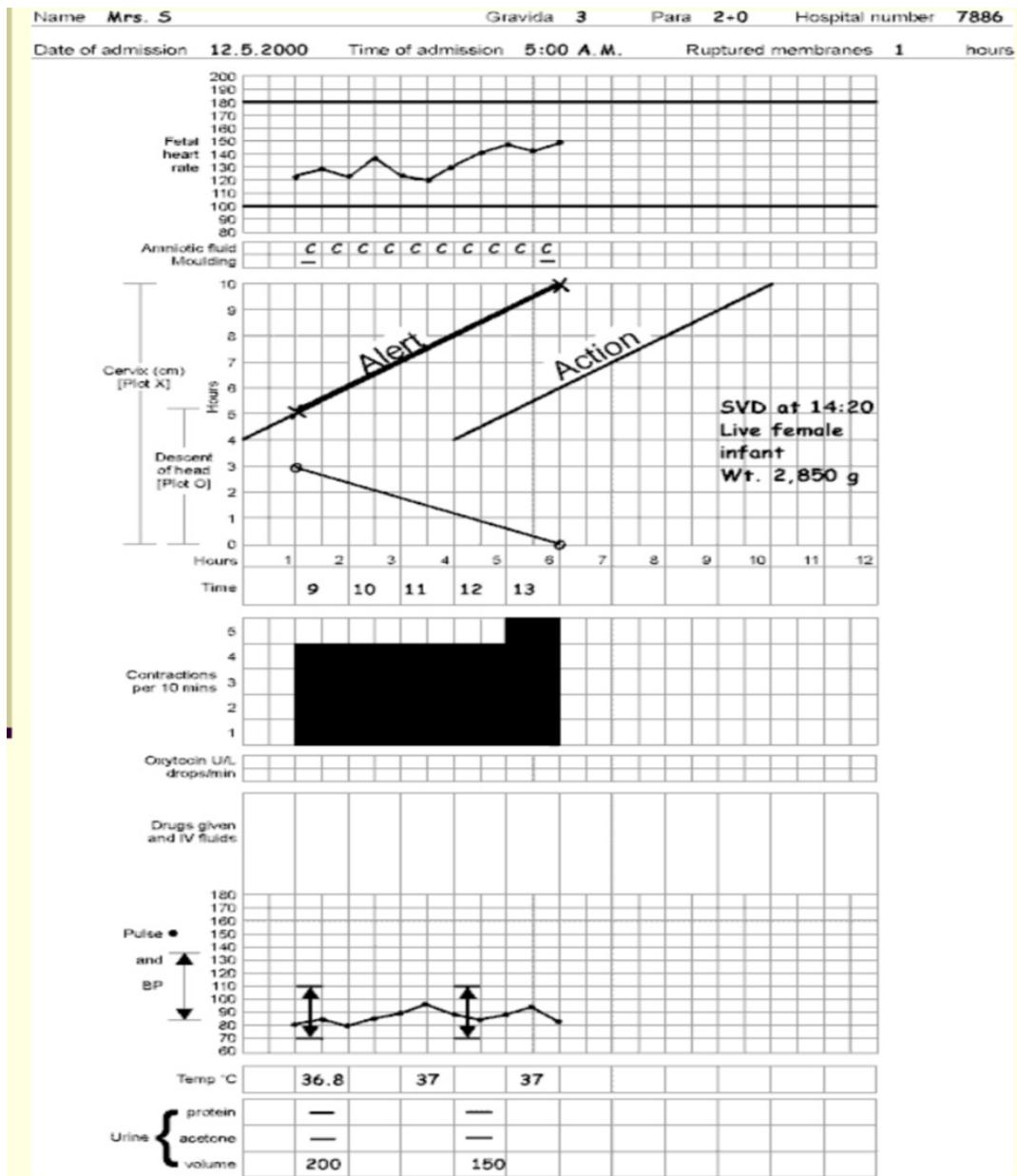
B: blood-stained fluid.

Moulding:

1: sutures apposed;

2: sutures overlapped but reducible;

3: sutures overlapped and not reducible.



Assess the progress of labour:

Cervical dilatation: Assessed at every vaginal examination and marked with a cross (X). Begin plotting on the partograph at 3 cm.

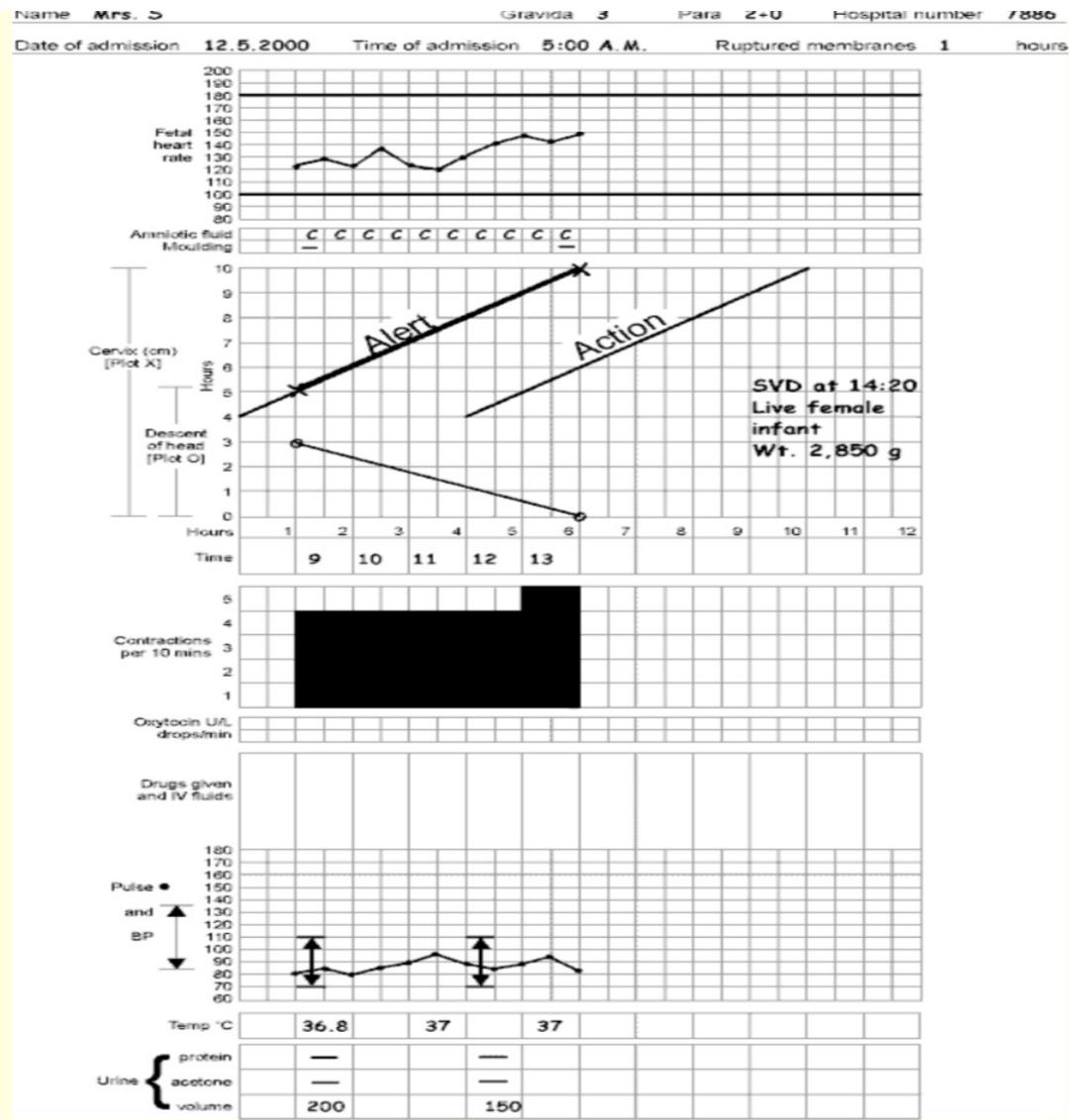
Station : recorded as a circle (O) at every vaginal examination.

Contractions: Chart every half hour; palpate the number of contractions in 10 minutes and their duration in seconds.

Less than 20 seconds:

Between 20 and 40 seconds:

More than 40 seconds:



Progress of maternal well being:

Oxytocin: Record the amount of oxytocin every 30 minutes when used.

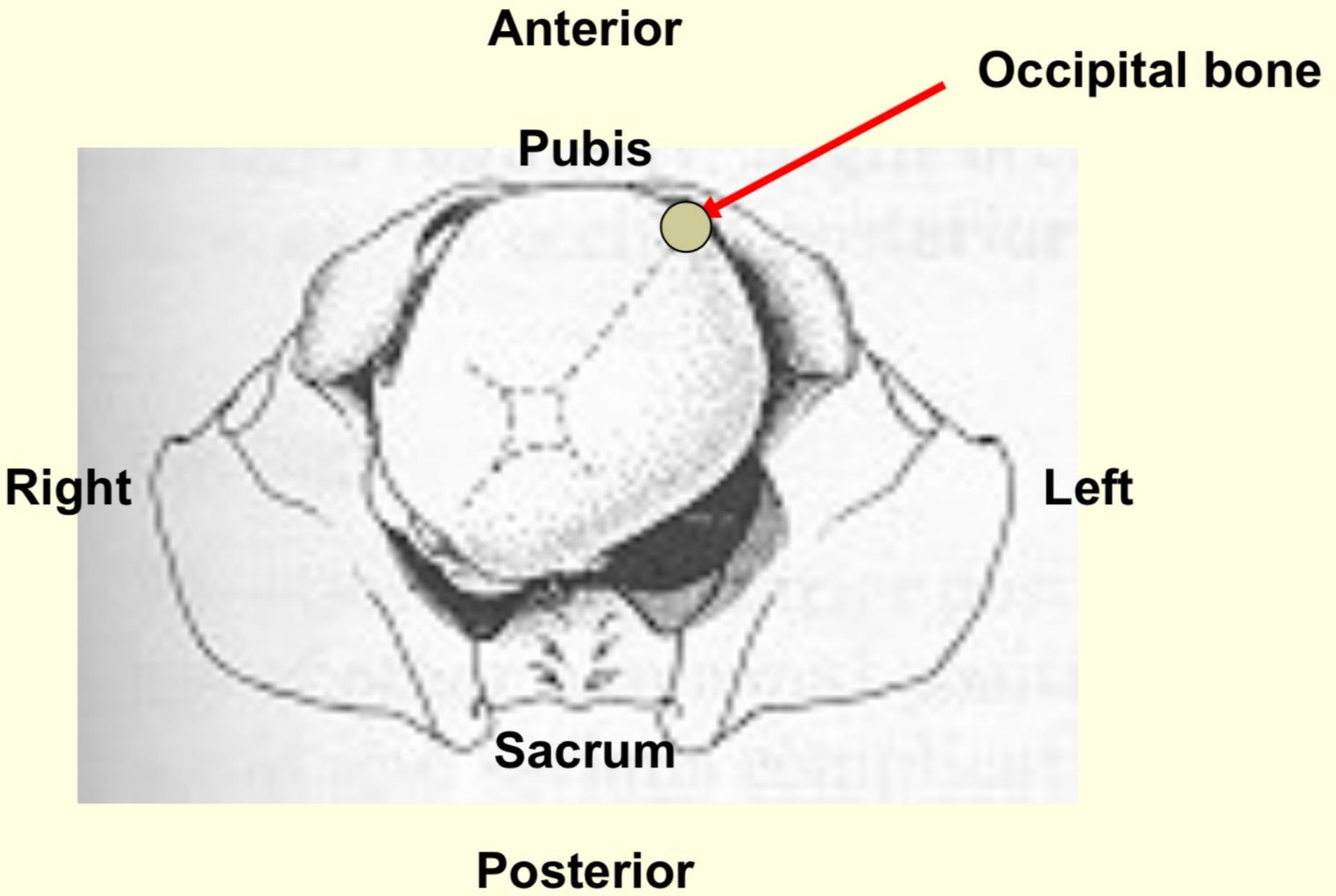
Drugs given: Record any additional drugs given – e.g. *Pethidine*

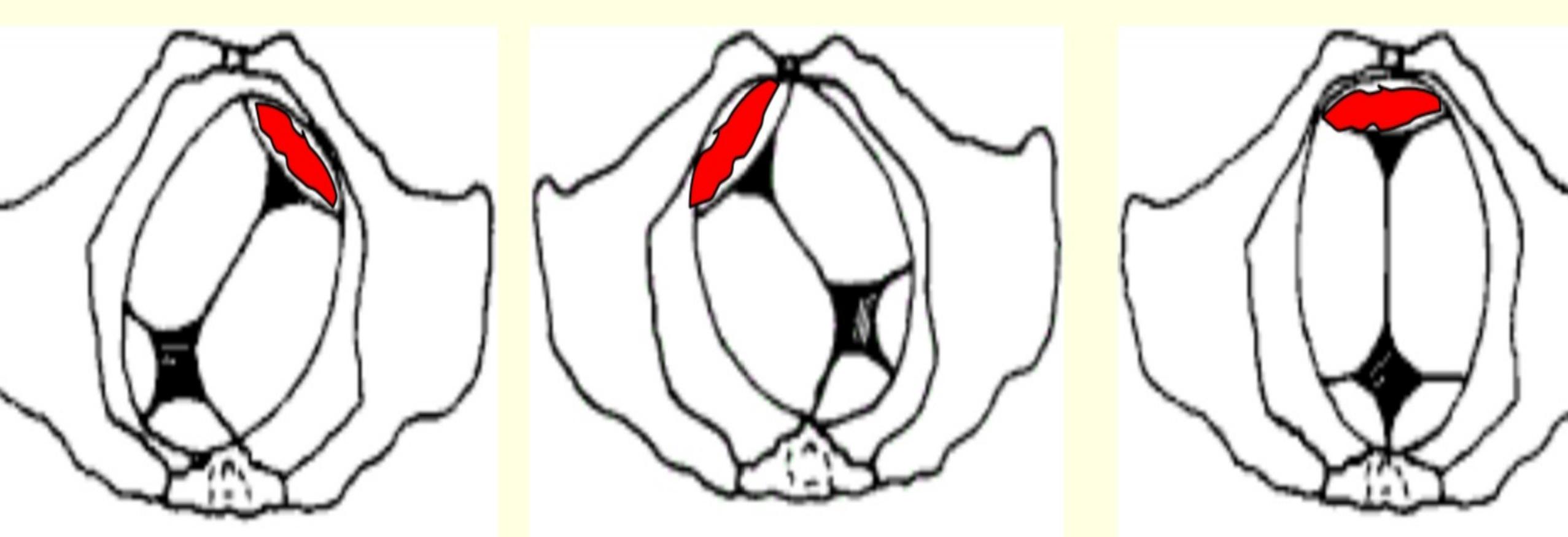
Pulse: Record every 30 minutes and mark with a dot (●).

Blood pressure: Record every 4 hours and mark with arrows (↑↓)

Temperature: Record every 2 hours.

Protein, acetone and volume: Record every time urine is passed.





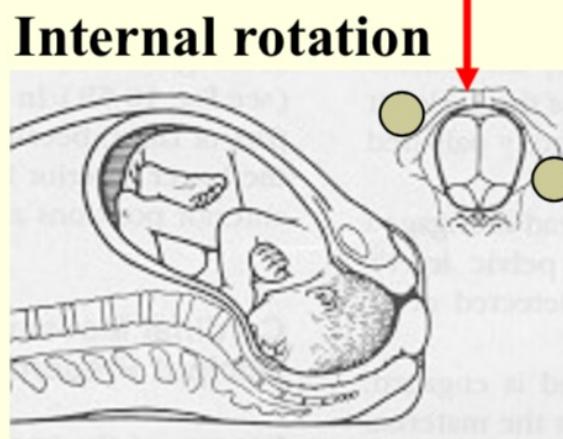
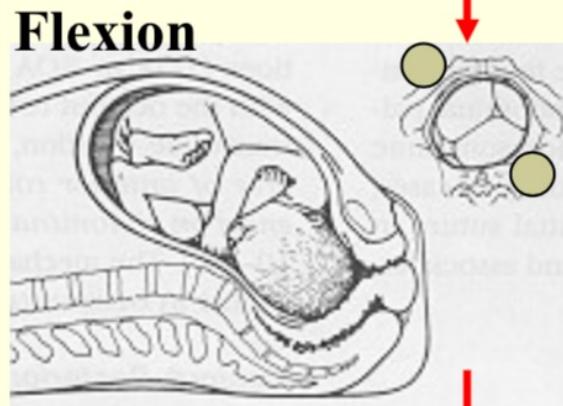
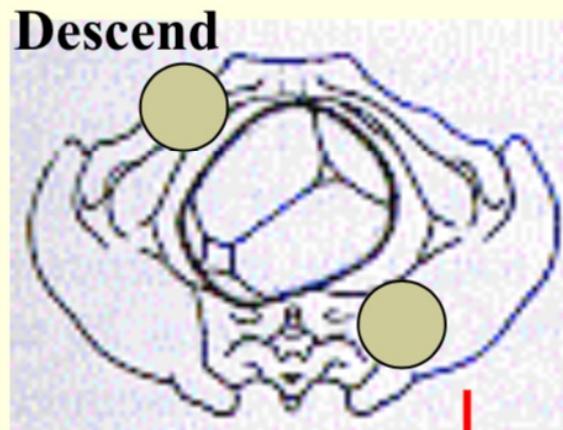
Left occiput anterior

Right occiput anterior

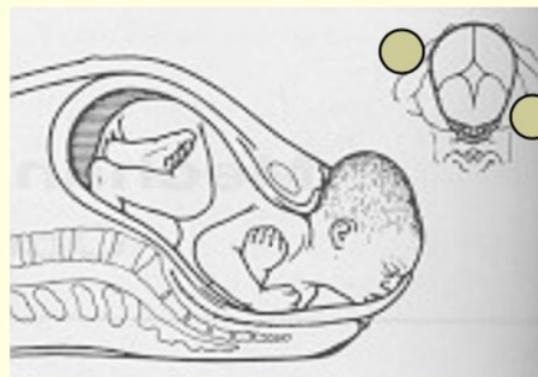
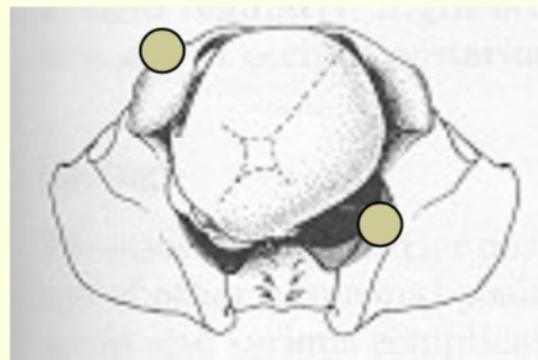
Occiput anterior

Events of mechanism of labour:

- **F:** Flexion and descent
- **I:** Internal rotation of the fetal head
- **C:** Crowning
- **E:** Extension
- **R:** Restitution
- **I:** Internal rotation of the shoulders
- **E:** External rotation of the fetal head
- **L:** Lateral flexion of the body



LOA



OA

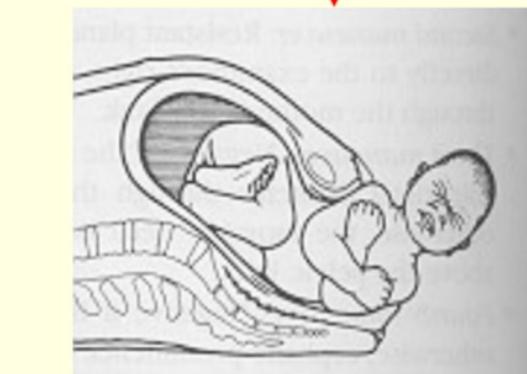
Crowning

LOA

Internal rotation of shoulder

External rotation of head

LOT



OA

Delivery



Third stage

- Delivery of the placenta occurs in two stages:
- separation of the placenta from the wall of the uterus and into the lower uterine segment and/or the vagina, and
- actual expulsion of the placenta out of the birth canal.

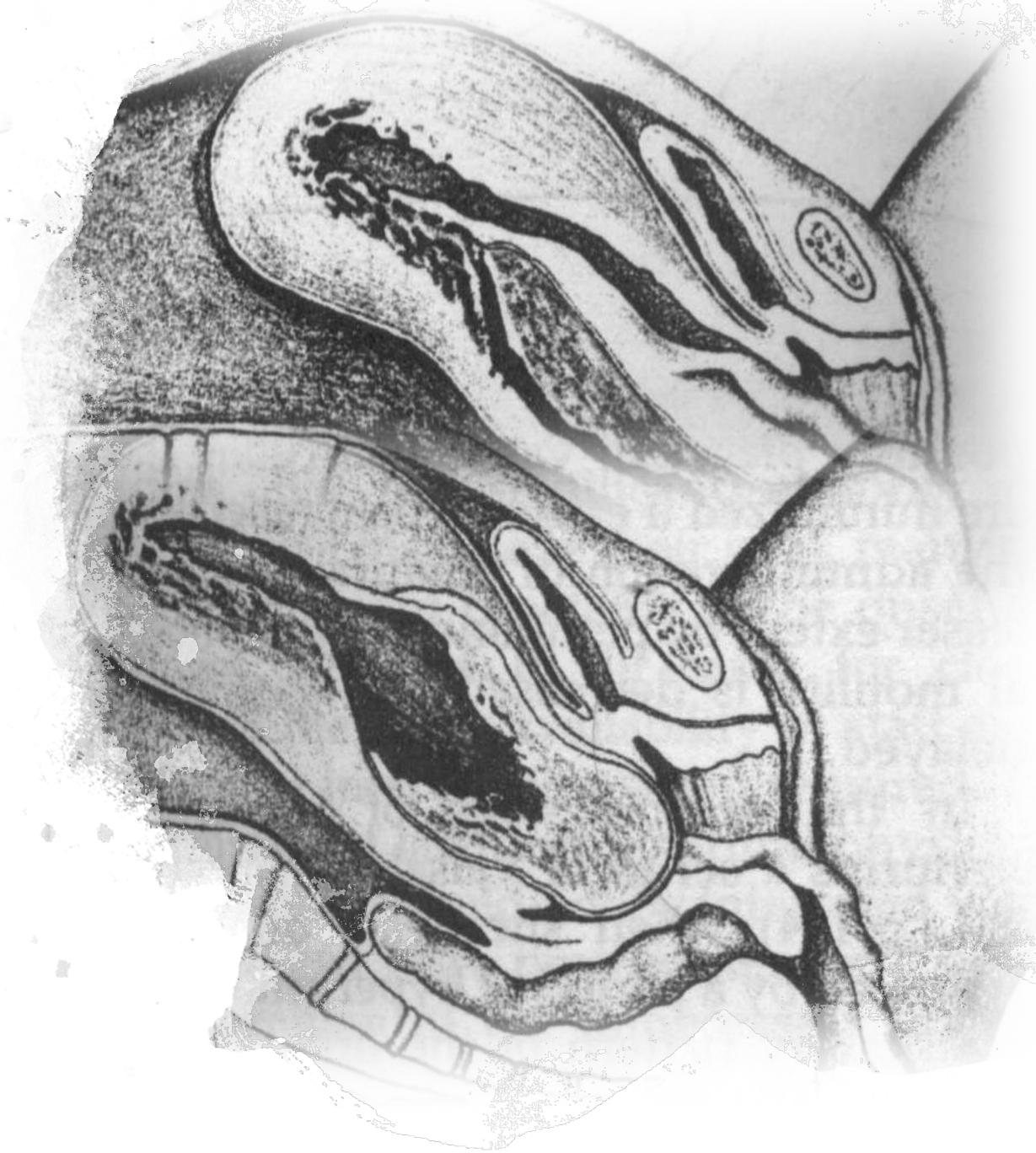


Mathews-Duncan mechanism

- The leading edge of the placenta separates first and the placenta is delivered with its raw surface exposed.

Schultz mechanism

- If the placenta is inserted at the fundus and central area separates first, the placenta inverts and draws the membranes after it, covering the raw surface (inverted umbrella) delivered with its raw exposed.



CLINICAL SIGNS OF PLACENTAL SEPARATION

Placental separation takes place within 5 minutes after the delivery of the infant.

Signs suggesting that detachment or separation has taken place include:

- The uterus becomes globular and hard. This sign is the earliest to appear.
- There is often a sudden gush of blood
- The uterus rises in the abdomen because the placenta, having separated, passes down into the lower segment and vagina, where its bulk pushes the uterus upward.
- Cord lengthening. This is the most reliable clinical sign of placental separation.



ACTIVE MANAGEMENT OF THE THIRD STAGE

helps prevent postpartum haemorrhage.

Active management of the third stage of labour includes:

- use of oxytocin
- controlled cord traction
- uterine massage.

EXAMINATION OF THE PLACENTA

- The placenta, membranes, and umbilical cord should be examined for completeness and for anomalies.

EXAMINATION OF THE PERINEUM

- At the same time, the perineal region, vulva outlet, vaginal canal, and the cervix should be carefully examined for lacerations.
- If the perineum has been torn or an episiotomy made, tear or incision should be repaired immediately.

Record keeping

Thank
you

