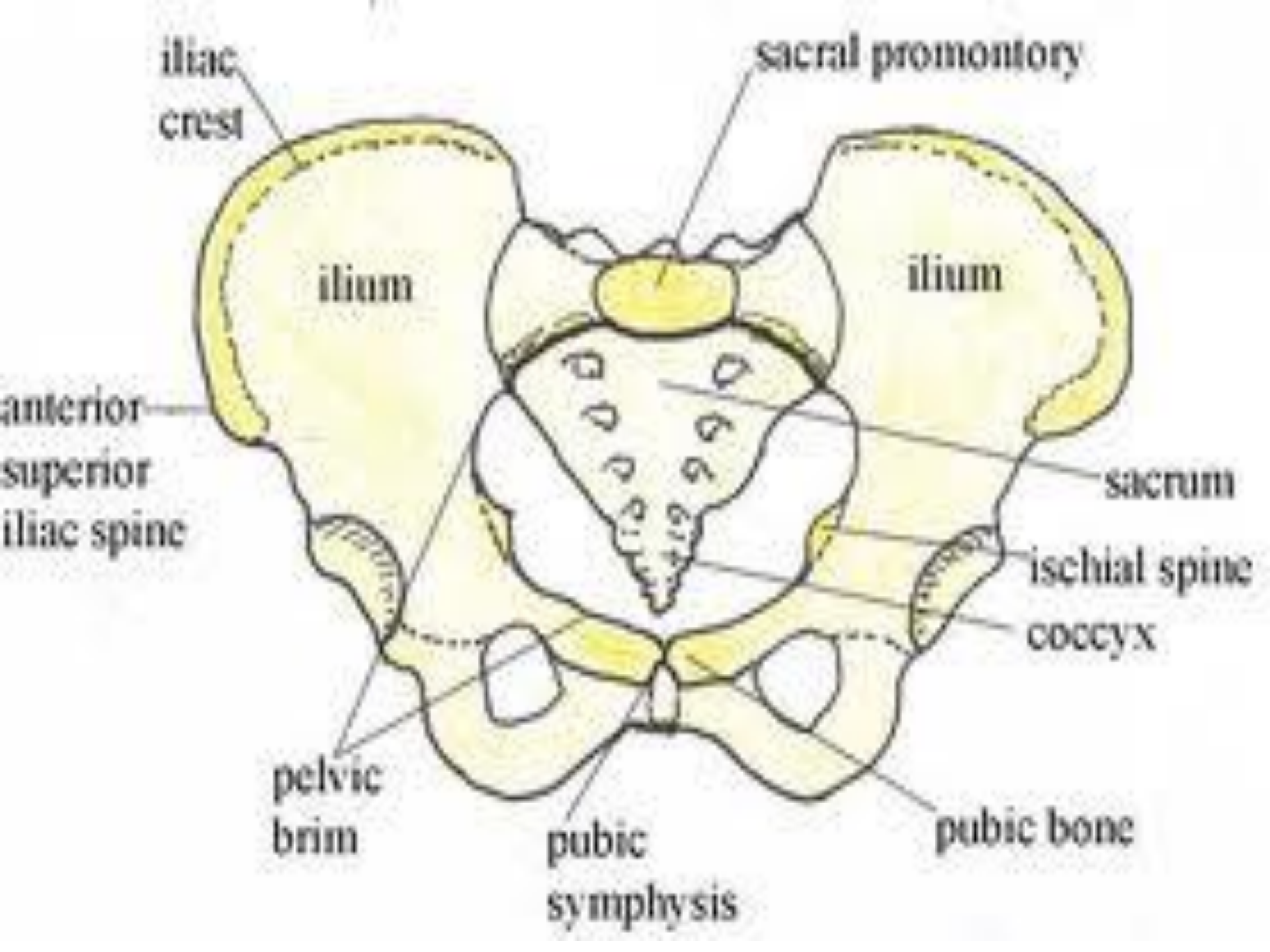
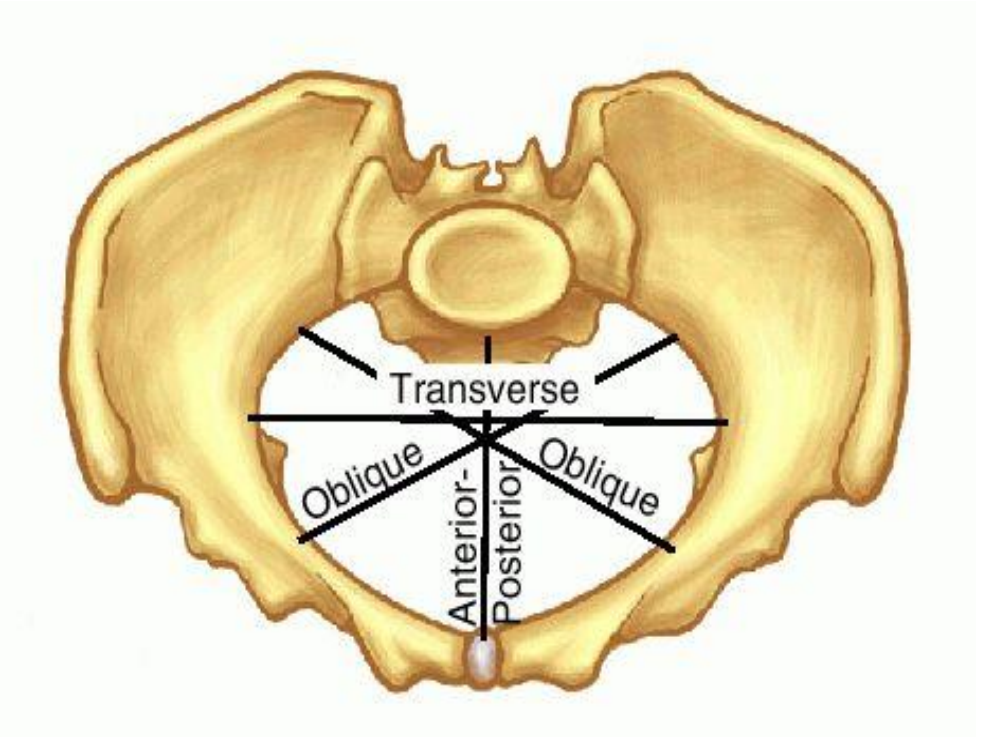
CEPHALO-PELVIC DISPROPORTION (CPD) & CONTRACTED PELVIS

Mrs. Prasuna Jelly
College of Nursing
AIIMS, Rishikesh.


iliac crest
sacral promontory
ilium
ilium
anterior superior iliac spine
sacrum
ischial spine
coccyx
pelvic brim
pubic symphysis
pubic bone

Pelvis	Diameter (cm)		
	Antero-posterior	Oblique	Transverse
Pelvic inlet	11	12	13
Pelvic cavity	12	12	12
Pelvic Outlet	13	12	11

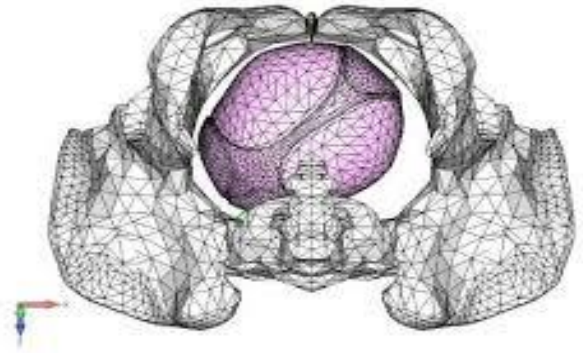


CEPHALO PELVIC DISPROPORTION and CONTRACTED PELVIS

CEPHALO PELVIC DISPROPORTION

DEFINITION

- *Cephalo pelvic disproportion is the disparity in relation between the head of baby and the mother's pelvis.*



- *It is a pelvis in which one or more of its diameter is reduced below the normal by one or more centimeter*

DEGREE OF DISPROPORTION

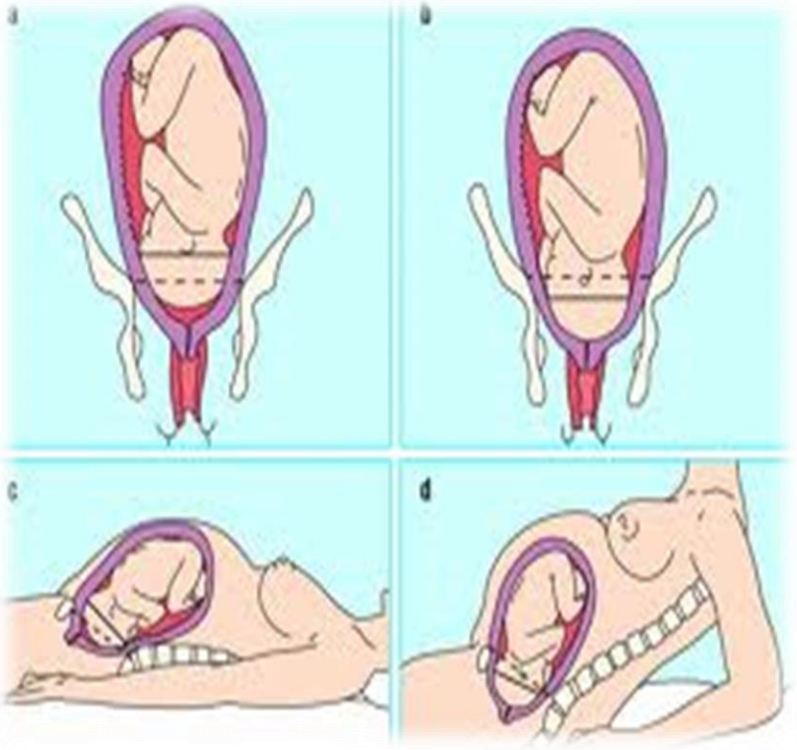
- ***It is based on clinical findings and pelvimetry:-***

a) **Severe disproportion**:- when the obstetric conjugate is less than 7.5 cm (3”) then it is said to be severe disproportion.

a) **Borderline disproportion**:- when the obstetric conjugate is between 9.5 and 10 cm. In inlet, the anterior posterior diameter is less than 10 cm and transverse diameter is less than 12 cm.

CAUSES

- Nutritional deficiency
- Disease / injury to pelvic bones
- Developmental defects
- A large size baby
- Abnormal fetal position
- Problem with genital tract



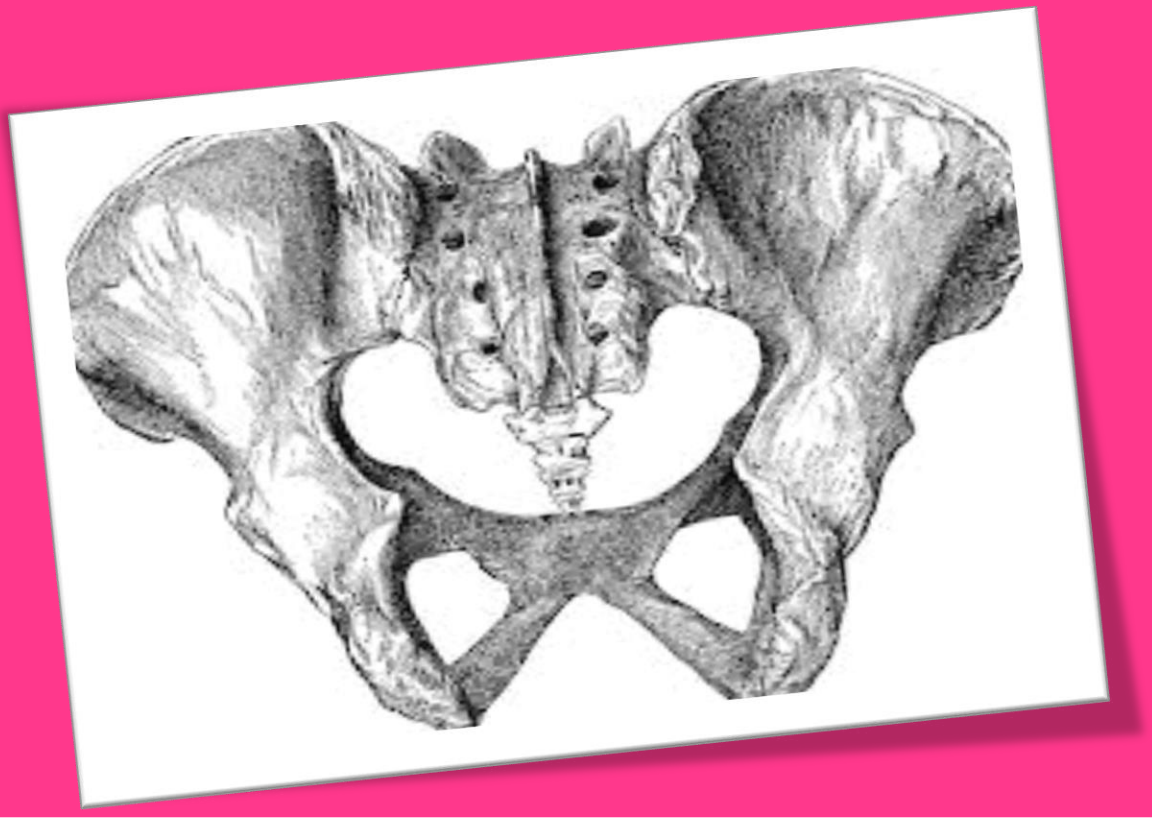
CLASSIFICATION OF CAUSES

Absolute causes:- it is a true mechanical obstruction due to:-

- Permanent maternal cause such as contracted pelvis, anterior sacrococcygeal tumor.
- Temporary fetal causes such as hydrocephalus, large baby etc.

Relative cause:- the relative cause includes brow presentation, face presentation, mento posterior, occipito posterior position, deflexed head in vertex presentation

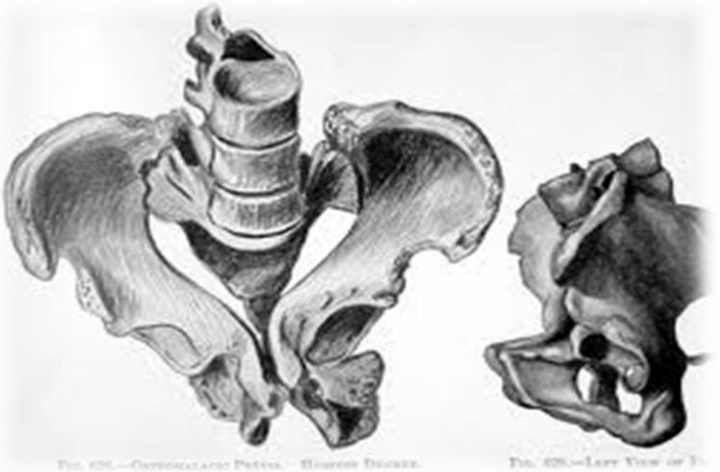
CONTRACTED PELVIS



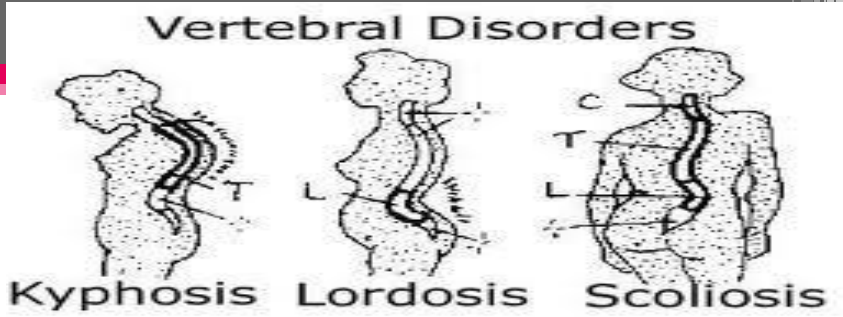
DEFINITION

- **Anatomical** - It is a pelvis in which one or more of its diameters is reduced below the normal by one or more centimeters.

- **Obstetric** - It is a pelvis in which one or more of its diameters is reduced so that it interferes with the normal mechanism of labor.



ETIOLOGY



- Common causes of contracted peıvıs are:-

❖**<u>Nutritional and environmental defects</u>**:-

minor variation;- common

major :- rachitic and osteomalacic –rare

❖ **Disease or injury affecting the bone of the pelvis:-** fracture ,tumors, tubercular arthritis.

spine:- kyphosis, scoliosis, coccygeal deformity

lower limbs:- poliomyeitis, hip joint disease

❖ **Developmental defects:-** naegele's pelvis,

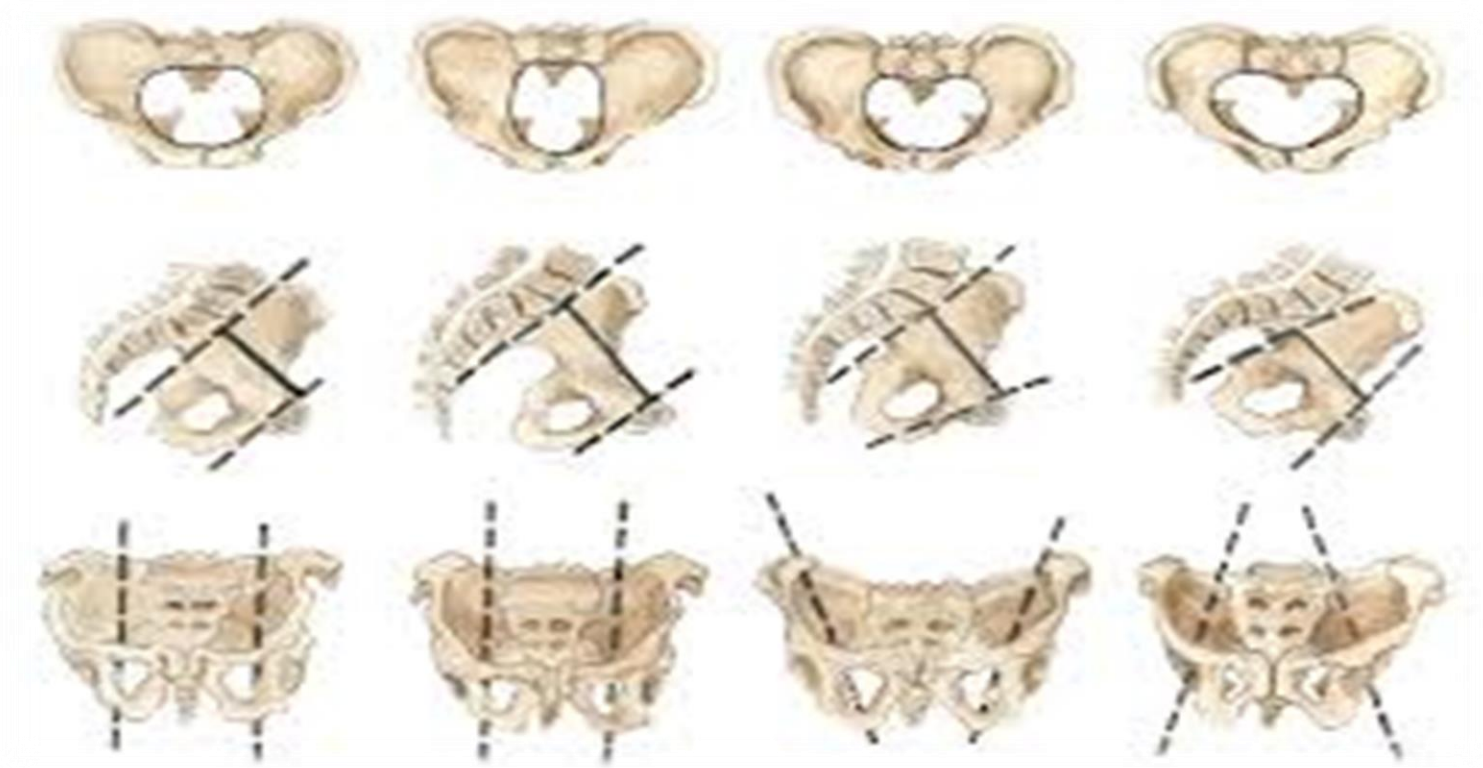
robert's pelvis

(low or high assimilation)

CLASSIFICATION

Classified by:-

- A) type of distortion of pelvic architecture
- B) degree of contraction

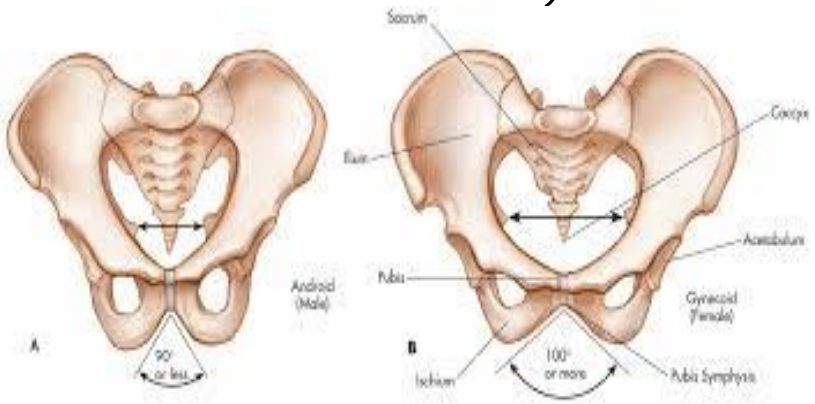


A) Classification by Pelvic Architecture

1. **Pelvis aequabiliter justo minor**

- Characterized by general reduction of all diameters; equally shortened usually by 1-2cm

- Occurs in short. Also occurs in women with massive skeletal bones and developed muscles, the pelvis has masculine features such as narrow sacrum, narrow pubic outlet {funnel-shaped)



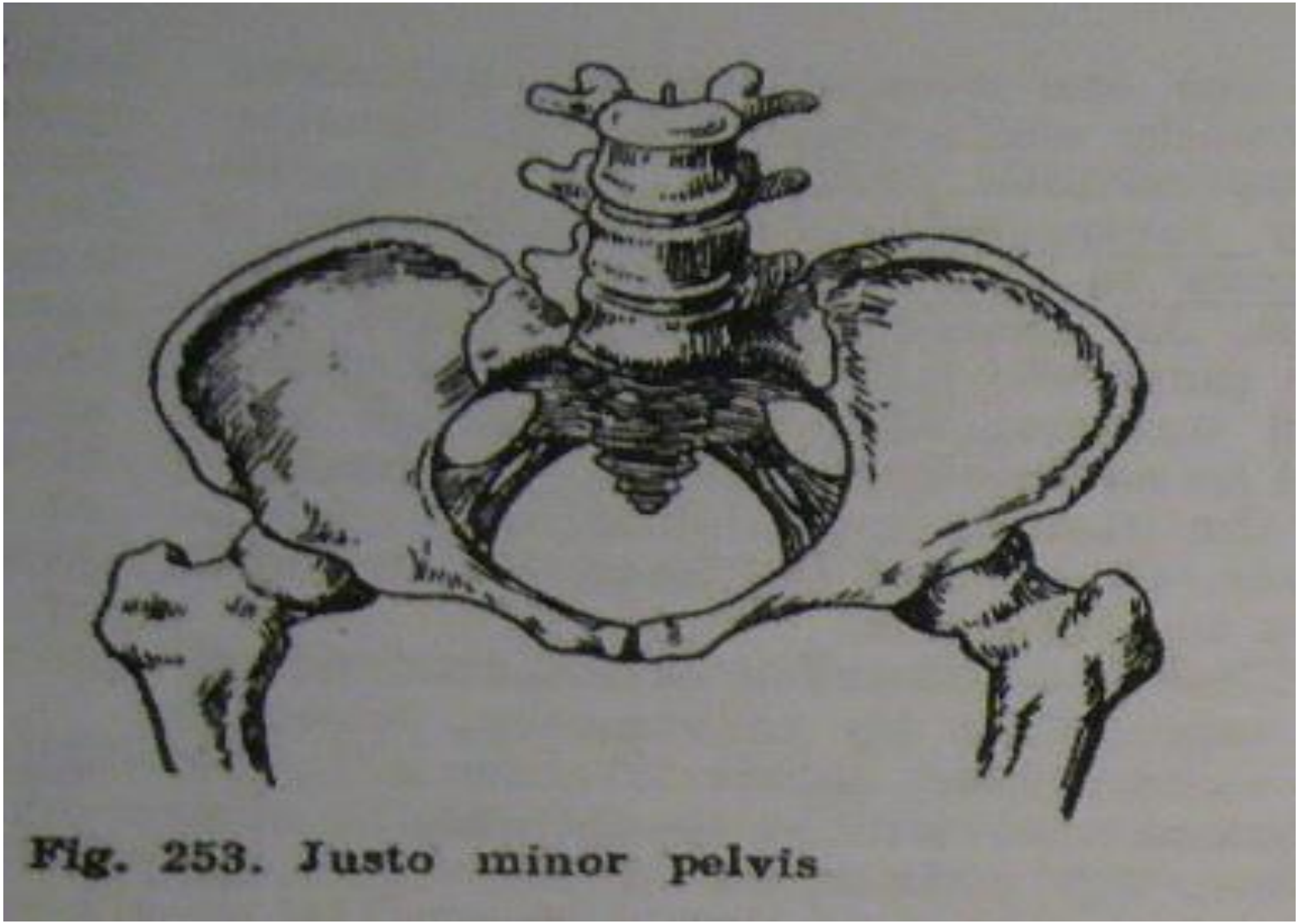


Fig. 253. Justo minor pelvis

2. **Flat Pelvis**

- reduced anteroposterior diameters with normal transverse and oblique diameters
- Has 2 types of contracture

a) **Simple flat (or platypellic) pelvis**

Entire sacral platform is dislocated toward the symphysis hence all the anteroposterior diameters of all pelvic planes are reduced

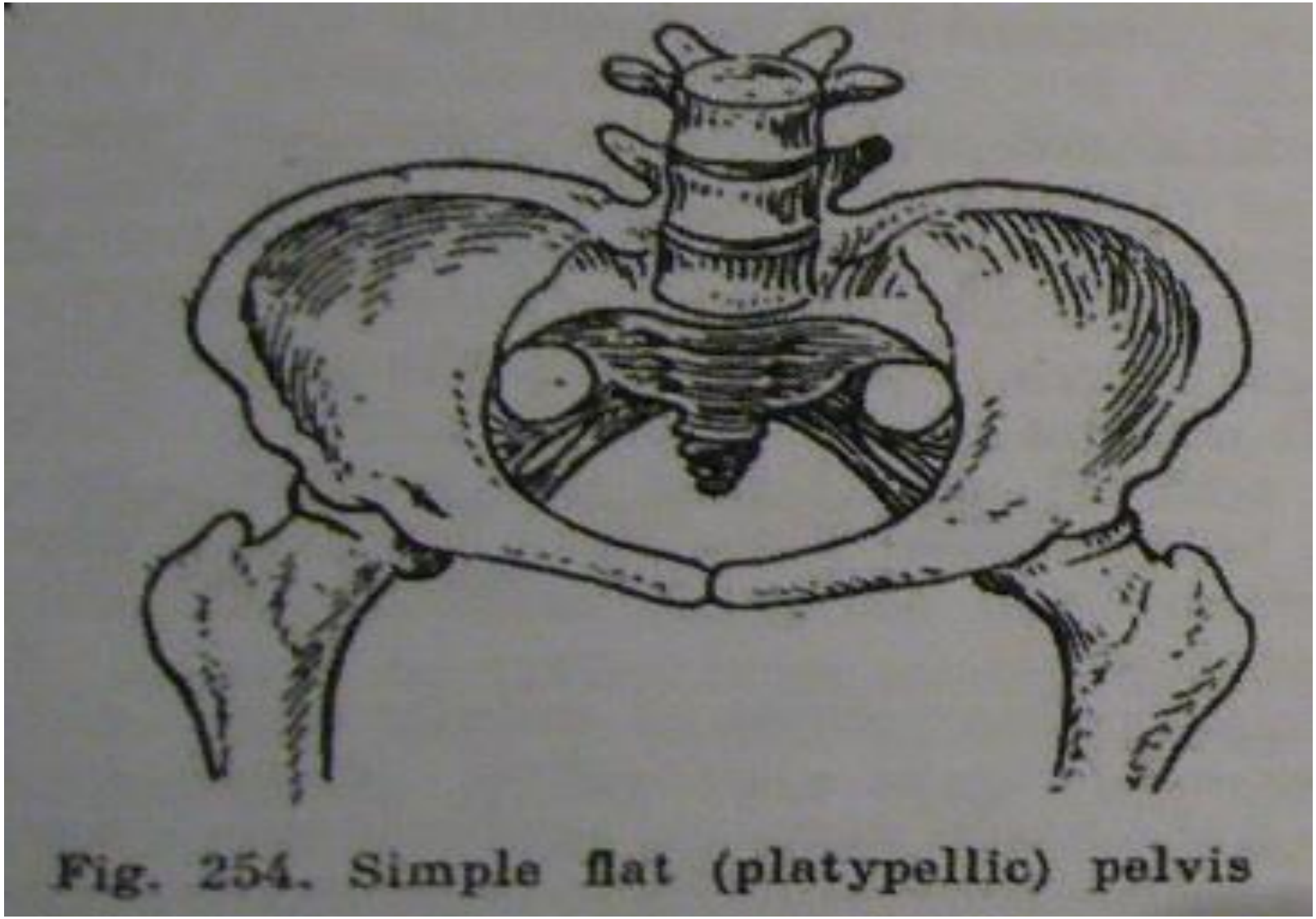


Fig. 254. Simple flat (platypellic) pelvis

b) **Flat rachitic**

Anteroposterior diameter of the pelvic inlet only is reduced

3. **Generally Contracted Pelvis**

- All diameters reduced, but the anteroposterior diameters are shortened greater then the others
- Usually connected with rickets of the childhood

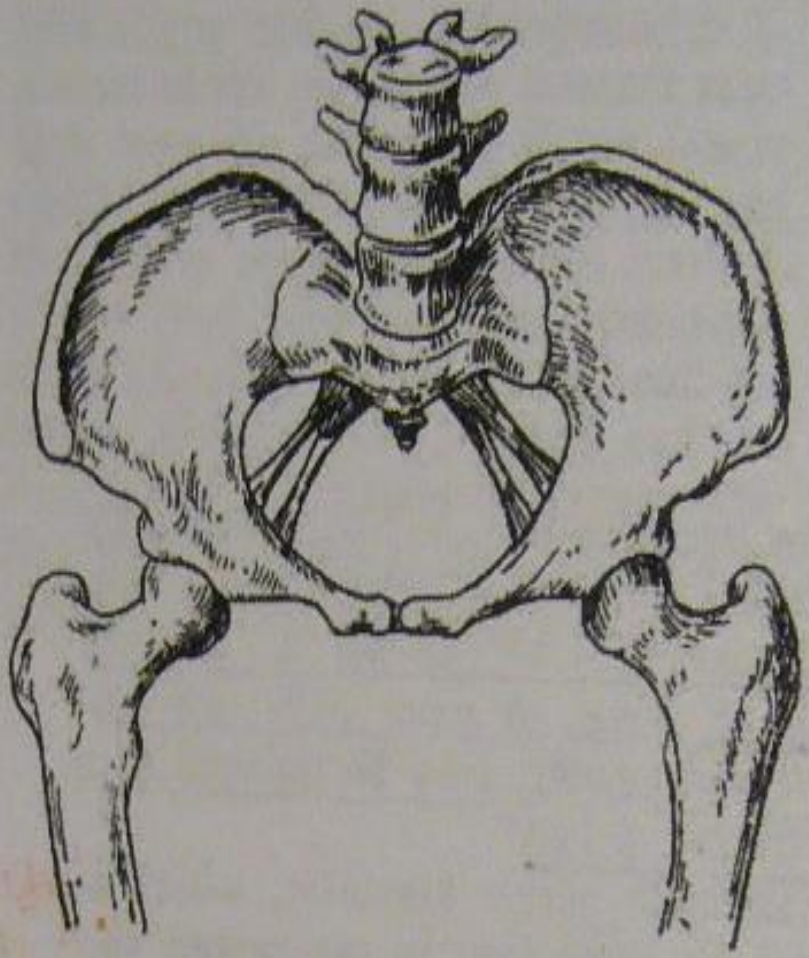


Fig. 255. Flat rachitic pelvis

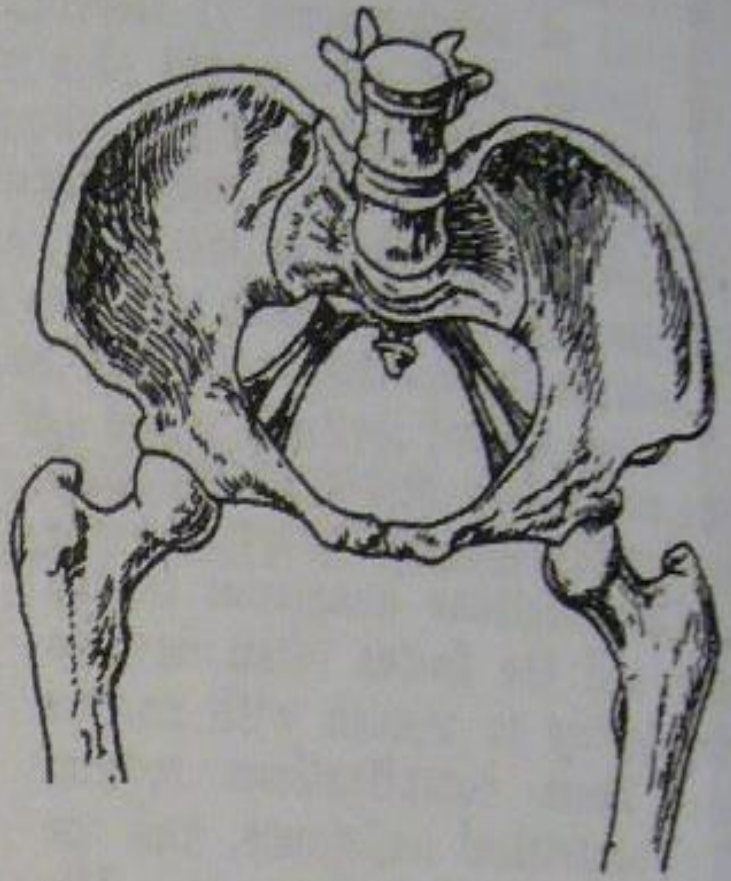


Fig. 256. Generally contracted flat pelvis

Rare forms of contracted pelvis

- ***Otto's pelvis*** – develop as result of inflammatory process in the hip or knee
- ***Beaked (rostrate) pelvis*** – under development of both sacral wings
- ***Spondylolithetic pelvis*** – formed due to partial dislocation of last lumbar vertebra in front of 1st sacral vertebra
- ***Osteomalacic pelvis***
- ***Scoliotic pelvis*** – only the lumber region cause deformity of the pelvis. The acetabulum is pushed inwards on the weight bearing side.

Fig. 257. Otto's pelvis

Fig. 259. Spondylolisthetic pelvis

Fig. 258. Beaked (rostrate) pelvis

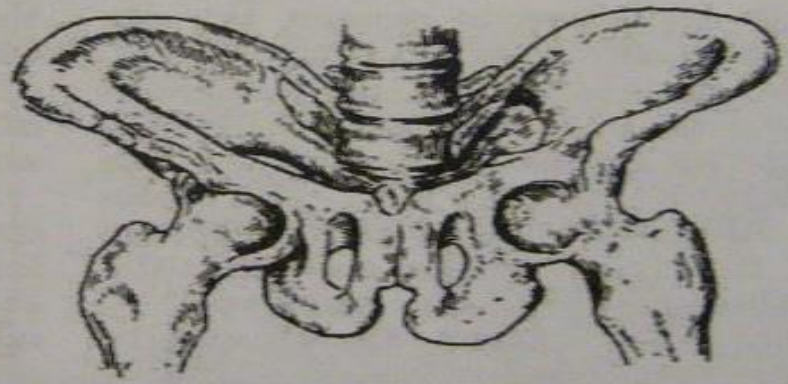


Fig. 260. Osteomalacic pelvis

B) Classification by degree of contracture

- **4 degrees**

i. **First degree**: true conjugate <11cm but not <9cm, spontaneous delivery is possible

ii. **Second degree**: true conjugate = 9-7.5cm spontaneous delivery possible but complications may arise

iii. **Third degree**: true conjugate 7.5-6cm spontaneous delivery impossible, use C-section

iv. **Fourth degree**: true conjugate <6cm, impossible delivery, only way is C-section ; also known as *absolutely contracted pelvis*

Diagnosis

A. History

- **Rickets:** is expected if there is a history of delayed walking and dentition.
- **Trauma or diseases:** of the pelvis, spines or lower limbs.
- Previous **tuberculosis of bones and joints**

- **Bad obstetric history**: e.g. prolonged labour ended by;
  - **difficult forceps,**
  - **caesarean section or**
  - **still birth.**
  - ❖Weight of the baby,
  - ❖Evidence of maternal injuries such as complete perineal tear, vesico vaginal fistula, recto vaginal fistula

B. General examination

✓ **dystocia dystrophia syndrome: Abnormal gait** :-

- Assess woman for stockily built with bull neck.
- Broad shoulder and short thigh
- Obese and male distribution of hair
- Sub fertile with menstrual abnormalities
- Android pelvis type

✓**Stature** :women < 150 cm or 5 feet

C. Abdomen examination

Inspection:

pointed abdomen in primigravida and Pendulous in multi-parous women

Obstetrical:

- ✓fetal head fails to enter a contracted pelvis at the end of pregnancy and floats high above inlet, failed growth of uterus deviates upward and anteriorly.

- ✓Non engagement in last 3-4 wks in primigravida

✓ 2 shapes of abdomen

- Acuminate (pointed)abdomen in primigravida with a resilient abdominal wall
- Pendulous abdomen in multi-parous women

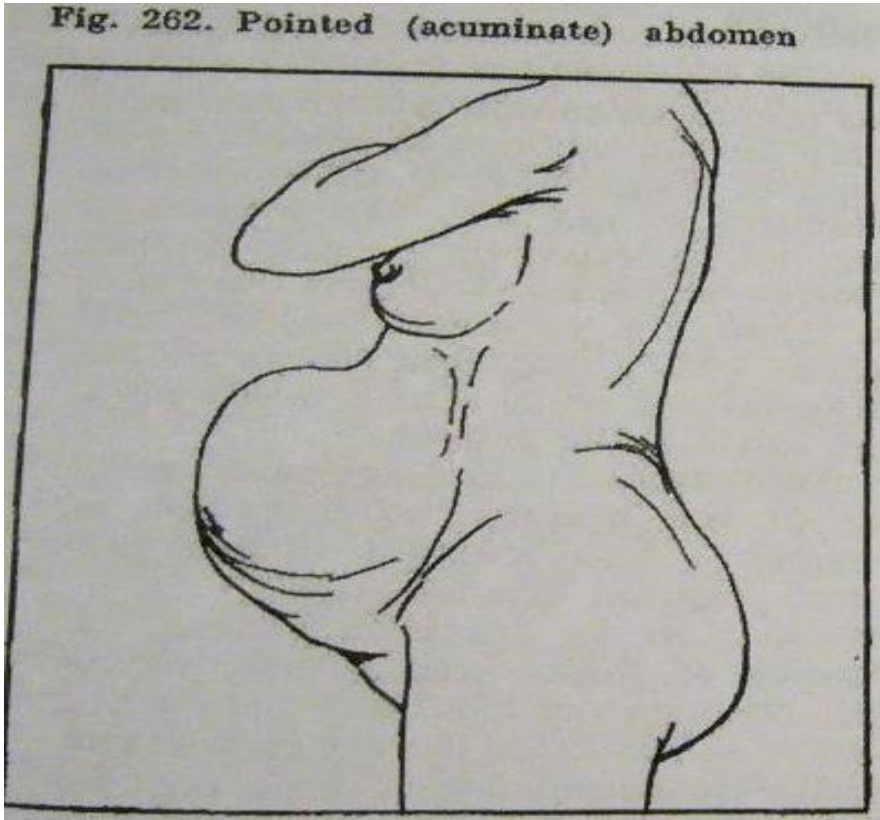


Fig. 262. Pointed (acuminate) abdomen

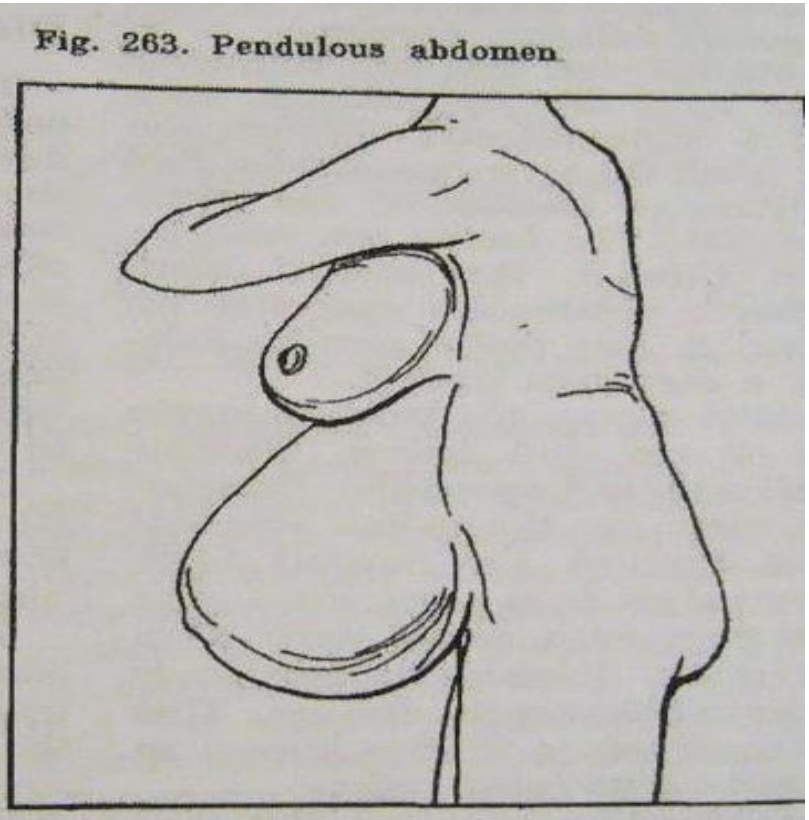


Fig. 263. Pendulous abdomen

Assessment of pelvis (Pelvimetry)

- Bimanual examination: clinical Pelvimetry or by imaging studies (radio-pelvimetry, CT, & MRI)

CPD DIAGNOSIS:

- **CLINICAL:** ABDOMINAL METHOD & ABDOMINO-VAGINAL METHOD
- IMAGING PELVIMETRY
- CEPHALOMETRY: USG, MRI, X-RAY

ABDOMINAL METHOD IN CPD

- Patient is placed in dorsal position with thigh flexes and separated.
- The head is grasped by the left hand.
- 2 fingers (index and middle) of the right hand are placed above the symphysis pubis to note the degree of overlapping, when the head is pushed downward and backward.

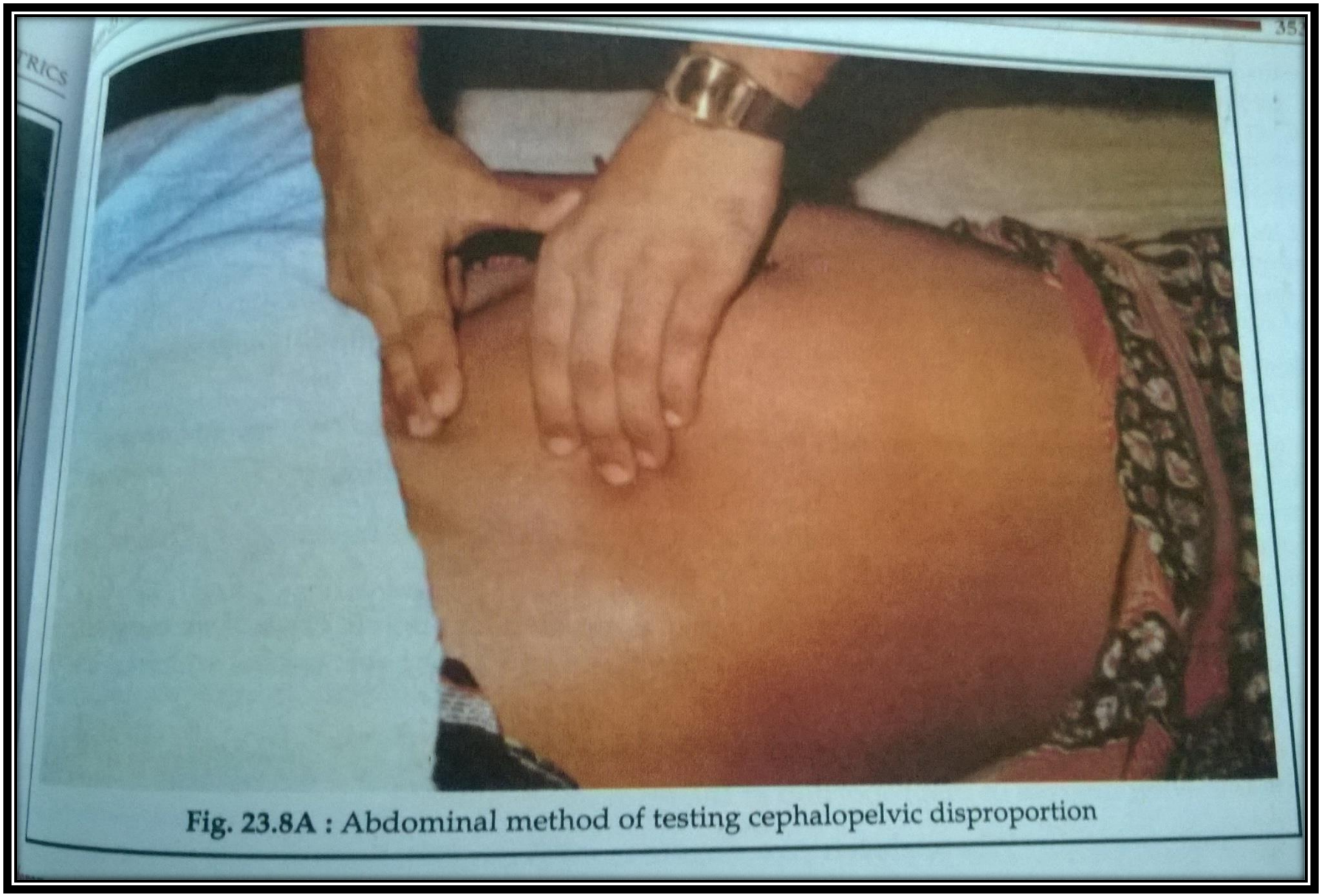


Fig. 23.8A : Abdominal method of testing cephalopelvic disproportion

- The head can be pushed down in the pelvis without overlapping of the parietal bone on the symphysis pubis:- ***no disproportion***

- Head can be pushed down a little but there is slightly overlapping of the parietal bone evidence by touch on the under surface of finger overlapping by 0.5cm:- ***moderate disproportion***

- Head can not be pushed down and instead the partial bone overhangs the symphysis pubis displacing the finger **– sever disproportion**

Some times the degree of disproportion is difficult to found by this method because of:-

- Deflexed head
- Thick abdominal wall
- Irritable uterus
- High floating head

ABDOMINAL - VAGINAL METHOD

- It is also called as **MULLER – MUNRO KERR**
- It is bimanual method.

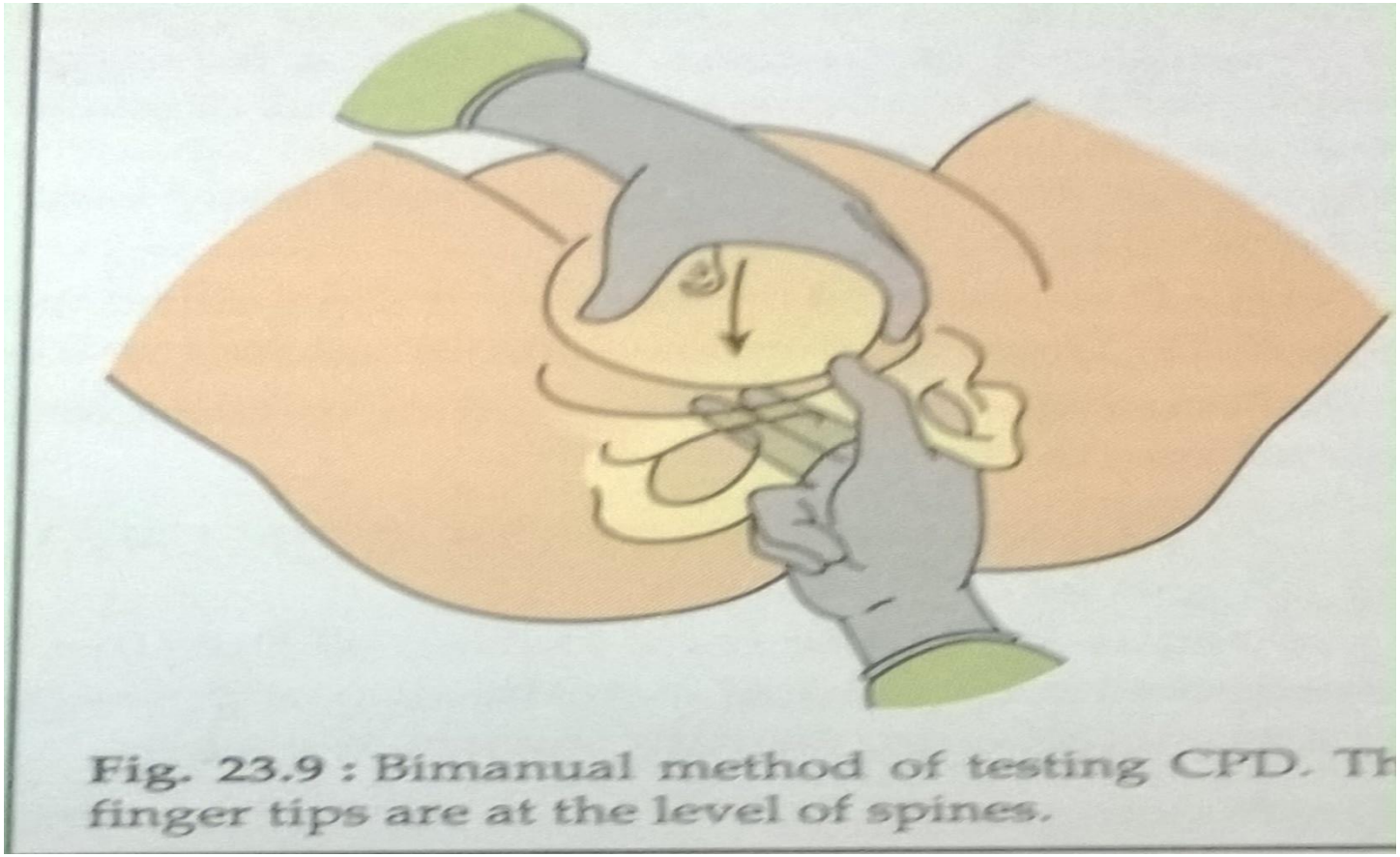


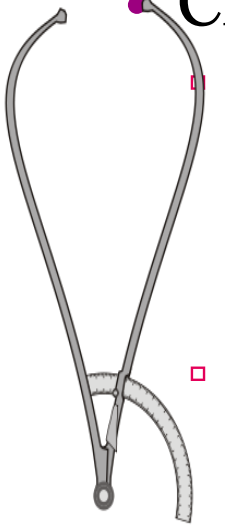
Fig. 23.9 : Bimanual method of testing CPD. Th
finger tips are at the level of spines.

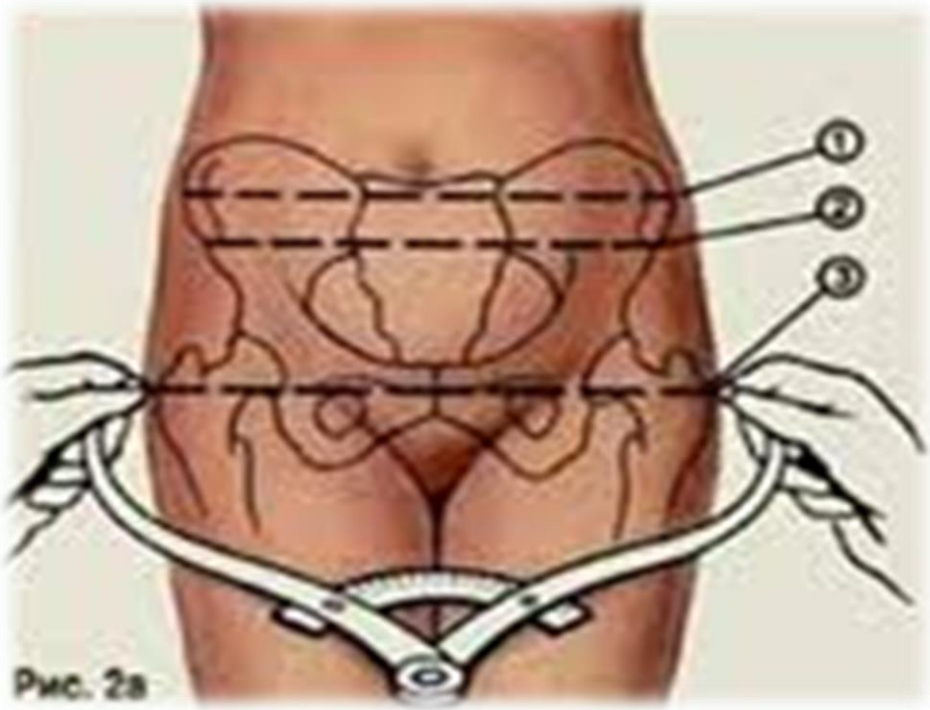
Results :-

- the head can be pushed down up to the level of ischial spines and there is no overlapping of the parietal bone over the symphysis pubis:- **no disproportion**
- The head can be pushed down a little but not up to the level of ischial spine and there is slight overlapping of the parietal bone**:- slight or moderate disproportion**
- The head can not be pushed down and instead the parietal bone overhangs the symphysis pubis displacing the thumb:- **sever disproportion.**

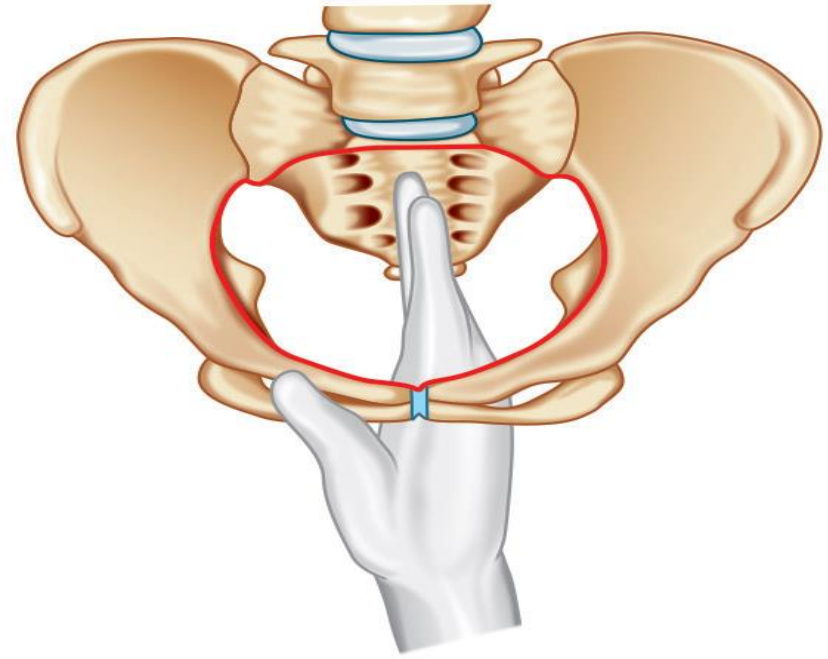
D. Pelvimetry

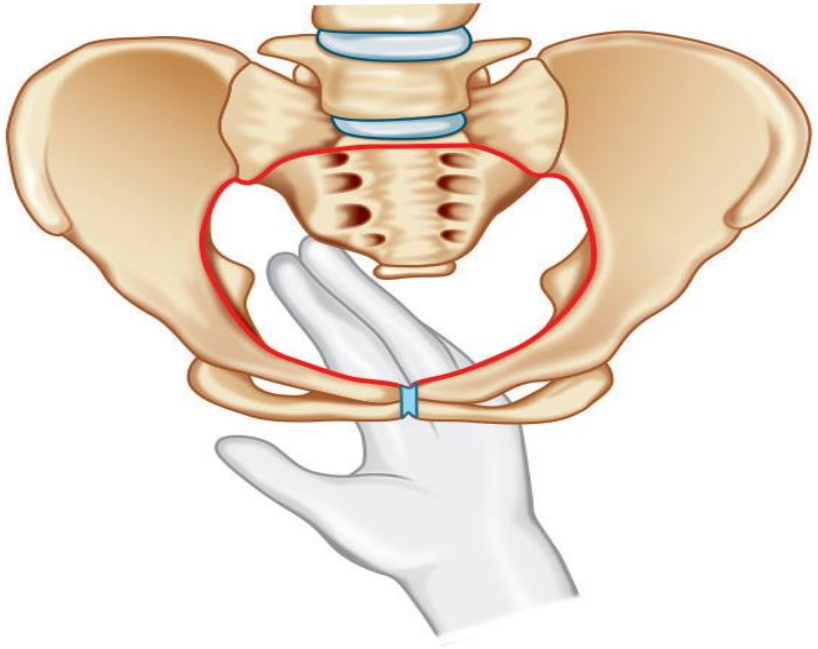
- It is assessment of the pelvic diameters and capacity done at 38-39 weeks. It includes:
- Clinical pelvimetry:
  - Internal pelvimetry for:
    - inlet,
    - cavity, and
    - outlet.
  - External pelvimetry for:
    - inlet and
    - outlet.

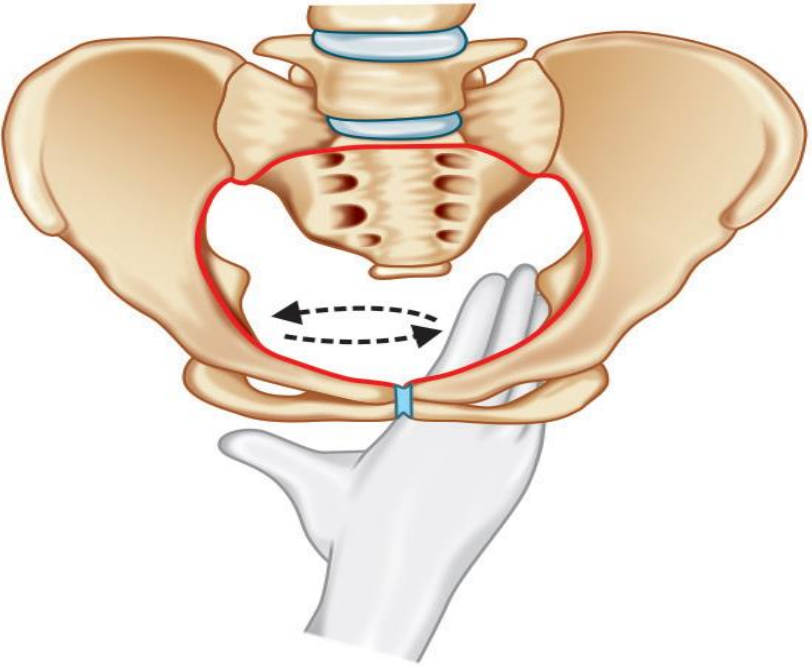


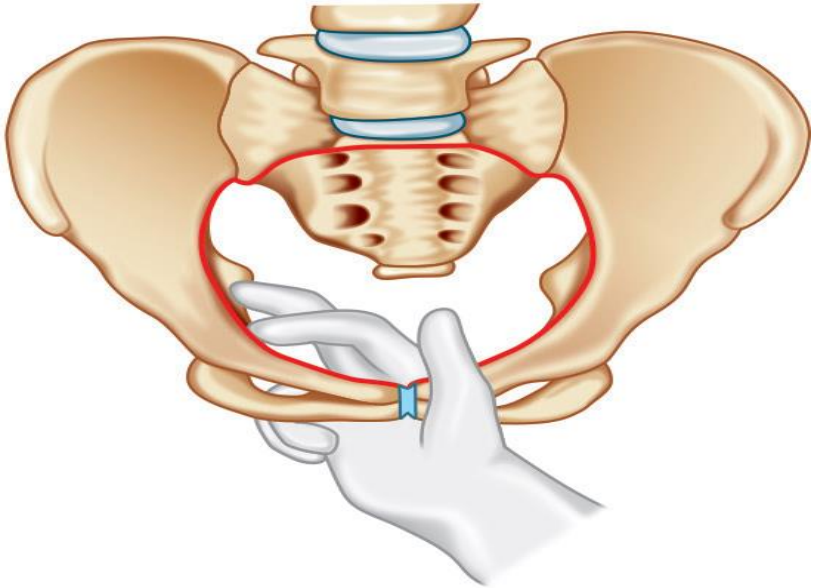


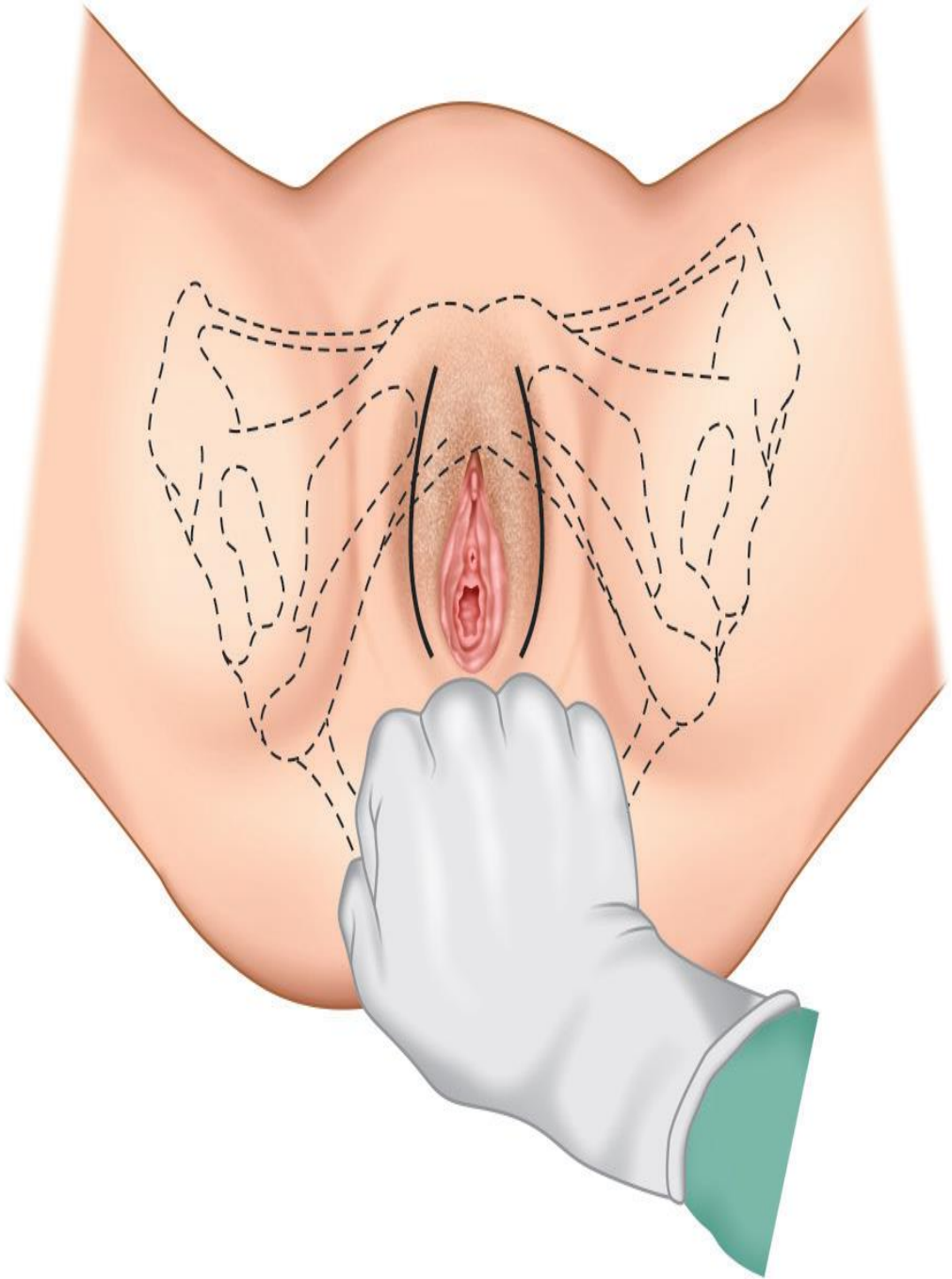
- Imaging pelvimetry:
  - X-ray.
  - Computerised tomography (CT).
  - Magnetic resonance imaging (MRI) .

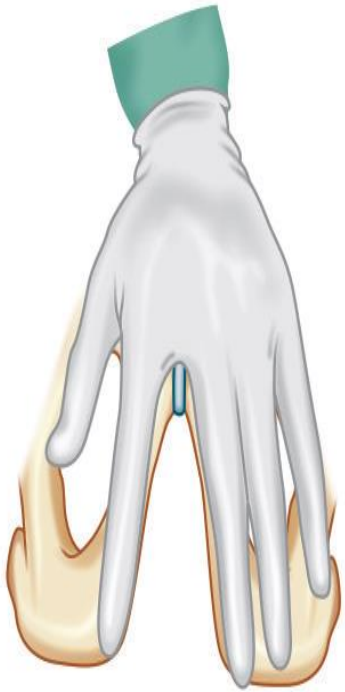


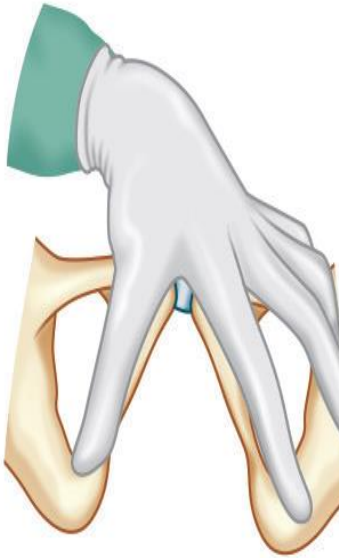




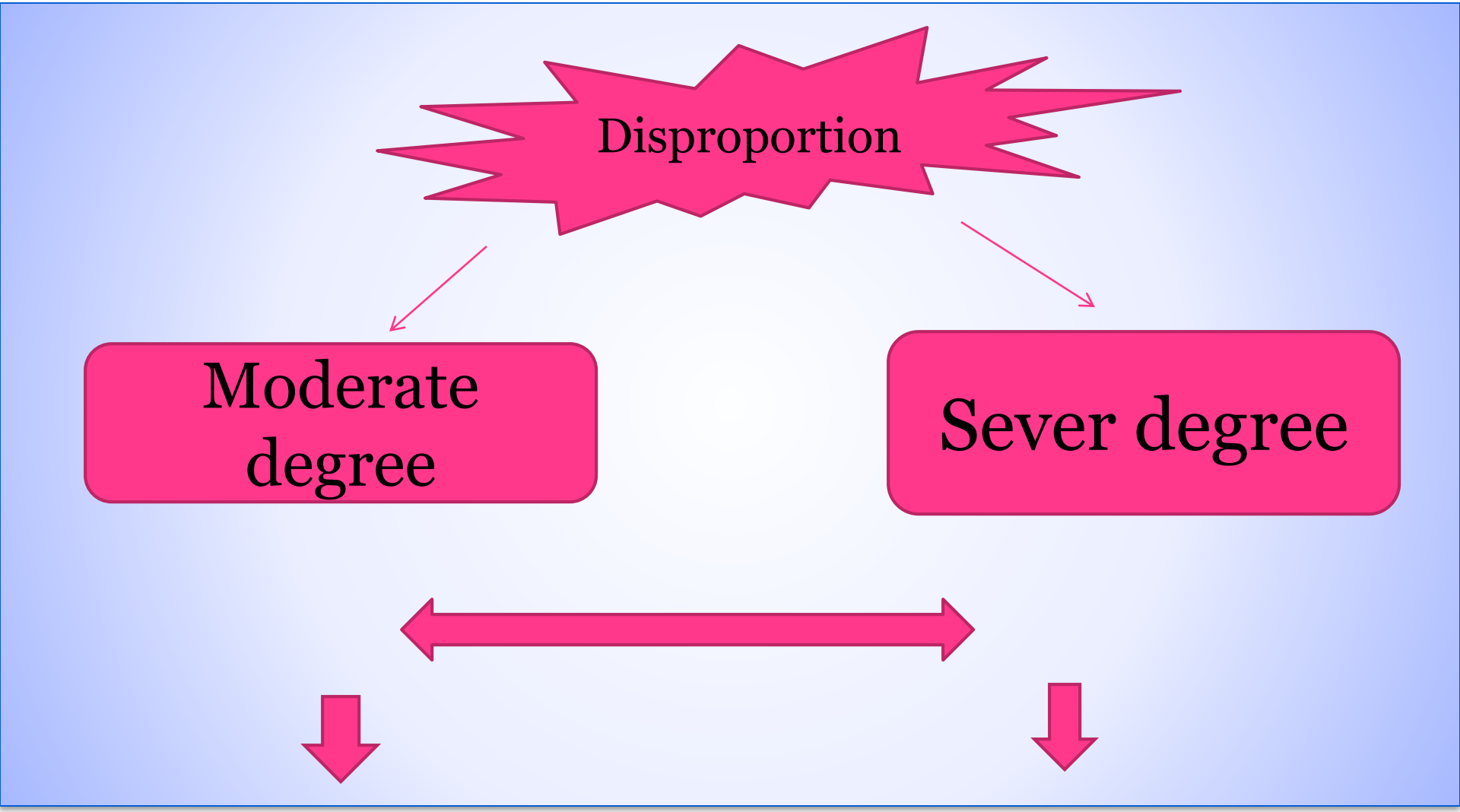


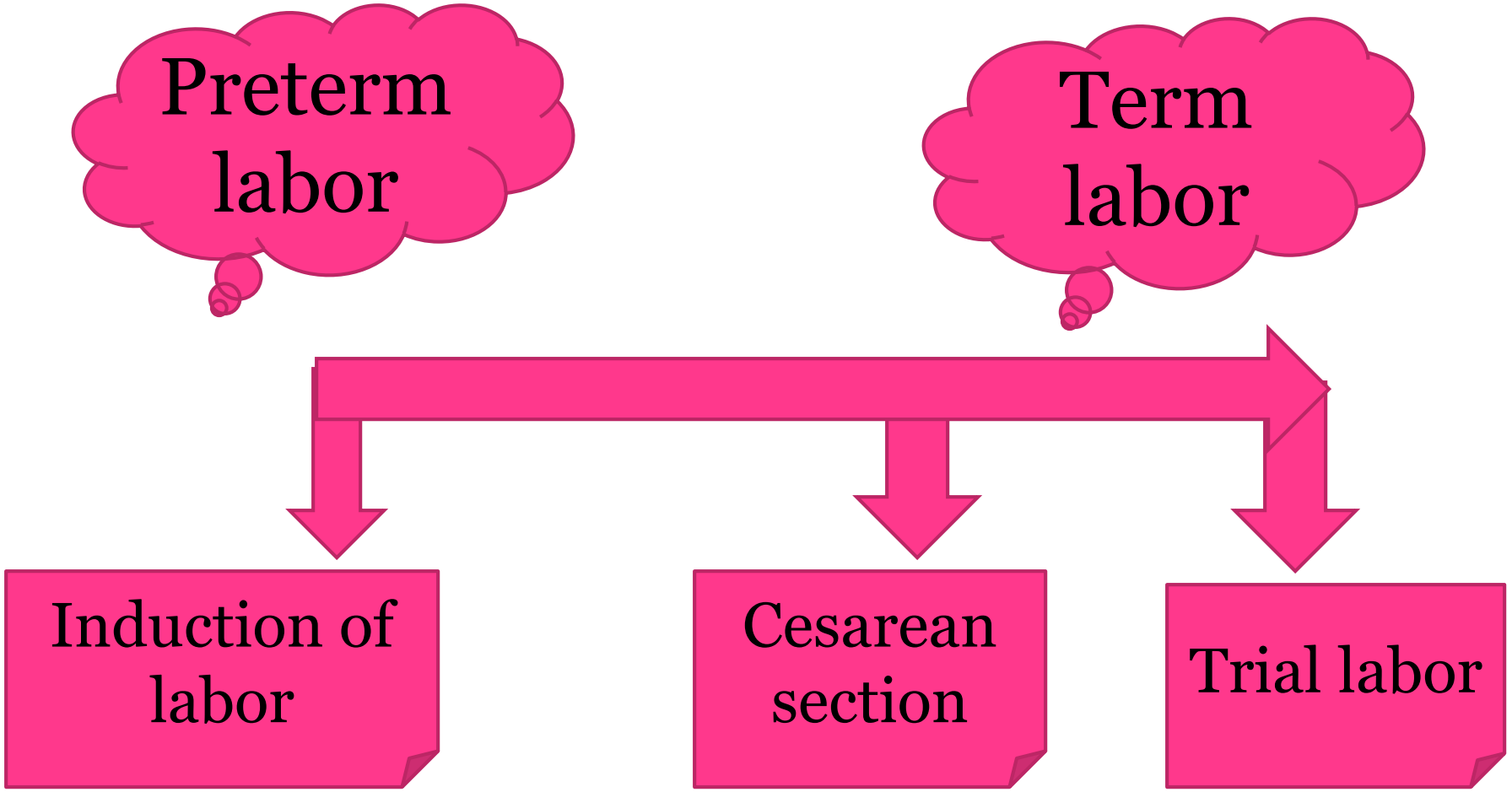






MANAGEMENT:-




Preterm labor
Term labor
Induction of labor
Cesarean section
Trial labor

CAESAREAN SECTION

- Elective cesarean section at term is indicated in:-

❖Major degree of contraction

❖Major disproportion

❖Absolute contraction

❖Dead fetus

❖Patient not fit for trial labor

The operation is done in planned way any time during last week of pregnancy.

- **Emergency:-**

when trial labor is failed

Trial labor:-

- It is the conduction of spontaneous labor in a moderate degree of disproportion, in an institution under supervision with watchful expectancy hoping for a vaginal delivery

or

Trial of labor is a test of labor allowing the patient to enter into active labor putting all variable

(power, passage and passenger) into test and determine whether vaginal delivery is possible or not.

CONDUCTION OF A TRIAL OF LABOR:-

- Careful fetal and maternal monitoring by electronic fetal monitoring and non stress test
- Oral feeding remain suspended and hydration is maintained by intravenous drip
- Adequate analgesic is administered
- Augmentation of labor by pitocin

- The progress of labor is mapped with partograph:-
  - *i) progressive descent of the head*
  - *ii) progressive dilatation of the cervix*
- After the membrane rupture, pelvic examination is to be done:-
  - *i) to exclude cord prolapse*
  - *ii) to note the color of liquor*
  - *iii) to assess the pelvis once or more*
  - *iv) to note the condition of the cervix including pressure of the presenting part of the cervix*

- in favorable cases, end spontaneously, low forceps and low ventouse.

- In unfavorable cases, do caesarean section.

Successful trial:-

A trial is called successful, if a healthy baby is born vaginally, spontaneous or by forceps or ventouse with the mother in good condition

Failure of trial labor:-

Delivery is by cesarean section or delivery of a dead baby spontaneously or by craniotomy is called failure of trial labor

ADVANTAGES OF TRIAL LABOR

- Lower incidence of cesarean section.
- A successful trial ensures the women a good future obstetrics.

DISADVANTAGES OF TRIAL LABOR

- May end before full cervix dilatation
- Increased fetal mortality and morbidity
- In failed trial operative risk increases.

NURSING MANAGEMENT:-

- Check vitals every 4 hourly
- Monitor both contraction and fetus continuously
- Report immediately the sign of fetal distress
- Position the mother in ways to increase the pelvic diameter such as sitting or squatting which increase the outlet diameter and also aid in fetal descent
- Assess the fetus for hypoxia
- Provide support to the client and the family members in coping with stress of a complicated labor

Complications of Contracted Pelvis

- Maternal:

During pregnancy:

> Incarcerated retroverted gravid uterus.

> Malpresentations.

> Pendulous abdomen.

> Nonengagement.

> Pyelonephritis especially in high assimilation pelvis due to more compression of the ureter.

Complications of Contracted Pelvis

During labour:

>Inertia, slow cervical dilatation and prolonged labour.

> Premature rupture of membranes and cord prolapse.

> Obstructed labour and rupture uterus.

> Necrotic genito-urinary fistula.

> Injury to pelvic joints or nerves from difficult forceps delivery.

> Postpartum haemorrhage.

COMPLICATIONS:-

First stage

- **Fetal distress**
- **Prolonged labor**

Complications of Contracted Pelvis

- **Foetal:**

> Intracranial haemorrhage.
> Asphyxia.
> Fracture skull.
> Nerve injuries.
> Intra-amniotic infection.