

**LATEST 2024 MARROW
NEET-SS NOTES**



**UPDATED
OBSGYNE RESIDENCY
NOTES**

OBSTETRICS

MATERNAL PELVIS

Pelvis

00:00:21

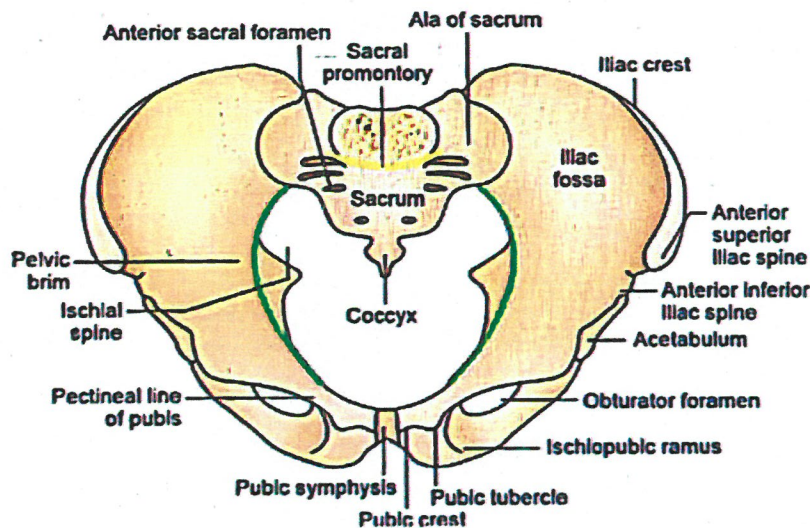
Pelvic brim / Linea terminalis :

From anterior to posterior it is formed by

Pubic symphysis → Pubic crest → Pubic tubercle → Upper border of ascending rami of pubic bone → Iliopectineal eminence → Iliopectineal line → Sacroiliac joint → Ala of sacral bone → Sacral promontory.

Parts above the pelvic brim → False pelvis (only support gravidarum uterus).

Parts at and below pelvic brim → True pelvis (takes part in labor).



Parts of true pelvis :

- Inlet : Lies at the level of pelvic brim.
Plane : Plane of inlet.
- Cavity : Lies at the level of $S_2 - S_3$ vertebra (in between inlet and outlet).
Planes :
 1. Planes of greatest pelvic dimension.
 2. Plane of least pelvic dimension.
- Outlet : Lies at the level of tuberosity.
Plane : Plane of outlet.

Active space

Pelvic inlet :

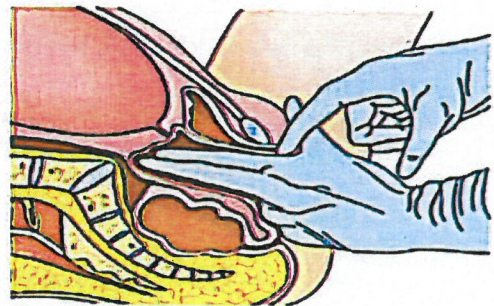
I. Anteroposterior (AP) diameter :

Diameter	Definition	measurement
True conjugate	Upper border of pubic symphysis to sacral promontory.	11 cm
Obstetric conjugate	mid of pubis symphysis to sacral promontory	10-10.5 cm
Diagonal conjugate (can be measured clinically)	Lower border of pubis symphysis to sacral promontory	12 cm

- Smallest AP diameter → obstetric conjugate (OC).
- Critical obstetric conjugate :
Smallest OC diameter = 10 cm.
If OC < 10 cm, vaginal delivery is not possible → Such pelvis is called contracted pelvis.
- Longest AP diameter → Diagonal conjugate (DC).
If DC is normal or 12 cm (ideal) → Finger can't touch sacral promontory.
If fingers can touch sacral promontory then DC < 12 cm.

$$OC = (DC - 1.5 \text{ to } 2) \text{ cm.}$$

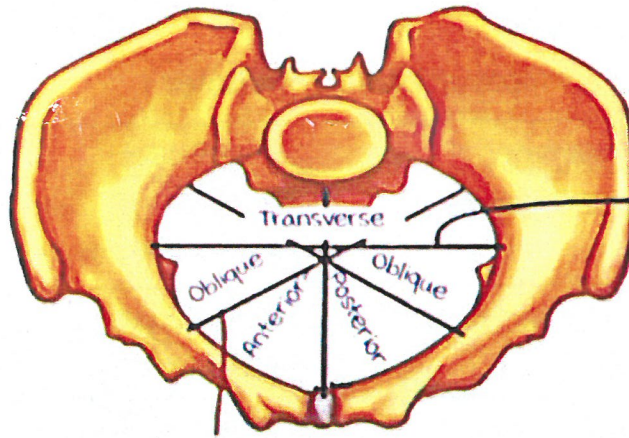
$$TC = (DC - 1) \text{ cm.}$$



Transverse diameter (TD) : Distance between a farthest points in Iliopectineal line, which is 13 cm.

Oblique diameter : Distance between one side's sacroiliac joint to other side's iliopectineal eminence, which is 12 cms.

Right oblique diameter (start from right sacroiliac joint to left side iliopectineal eminence).



Left (start from left sacroiliac joint to right iliopectineal eminence).

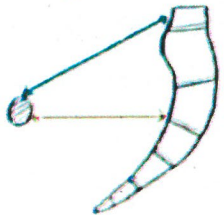
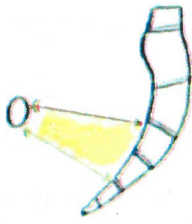
Shape of pelvic inlet in normal female is oval (transverse oval).

TD diameter > AP diameter.

Cavity

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The part of the pelvis between pelvic inlet and outlet is pelvic cavity. It is shaped like a truncated cylinder.

Plane of greatest pelvic dimension	Plane of least pelvic dimension
Anteriorly : Center of posterior surface of pubic symphysis.	Mid pelvis lies at this dimension. Anteriorly : Lower border of pubic symphysis.
Posteriorly : Junction of S2/S3.	Posteriorly : Junction of S4/S5 vertebra.
Laterally : obturator foramen.	Laterally : Ischial spine.
It is the roomiest part of pelvic cavity.	It is the narrowest plane of pelvis.
All of its diameter's are 12cms. It does not have any obstetrical significance.	AP diameter is 11.5cms to 12cms.
	

- mid pelvis : Part of pelvis lies between the plane of greatest dimension and plane of least pelvic dimension.
- Transverse diameter (inter ischial diameter, bispinous

diameter = 10cms) is the distance between two ischial spines. Being the smallest diameter of pelvis, it is the most important diameter during labour.

- Posterior sagittal diameter of mid pelvis = 4.5 to 5 cms. From the posterior boundary, going up till intersection of transverse diameter and AP diameter.

Clinical measurement of interischial diameter (IID) :

Try to touch both the ischial spines simultaneously with 2 fingers of your hand, if possible it means IID is contracted, which means mid pelvis is contracted.

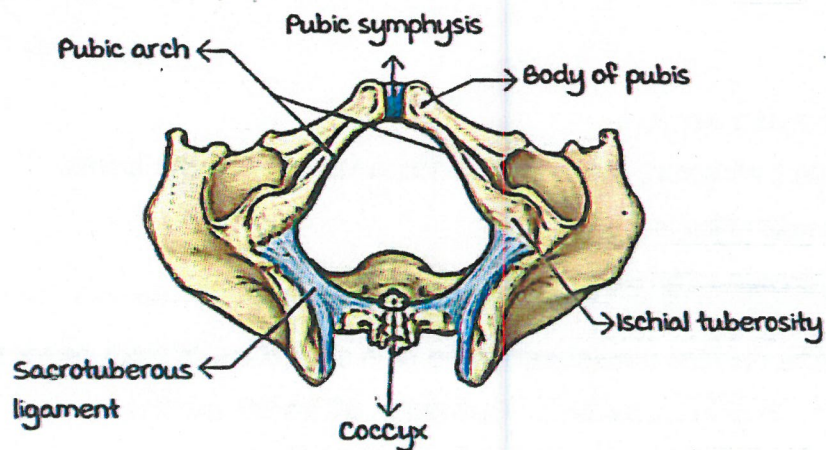
So mid pelvis is called as contracted :

1. If IID is < 8 cms.
2. Both Ischial spines can be touched simultaneously with 2 fingers of same hand.

Note : In male pelvis or android pelvis, ischial spines are prominent. And, deep transverse arrest occurs at the level of ischial spine in an android pelvis.

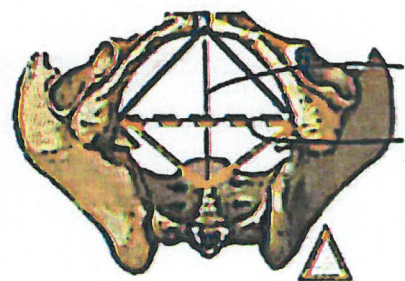
Anatomical outlet

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The outlet is diamond shaped.
Boundaries of anatomical outlet :

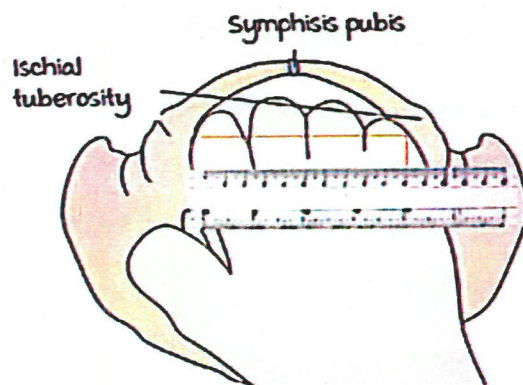
1. Posterior : Tip of sacrum (or coccyx if it is not pushed back).
2. Anterior : Lower border of pubic symphysis.
3. Lateral : Ischial tuberosity.



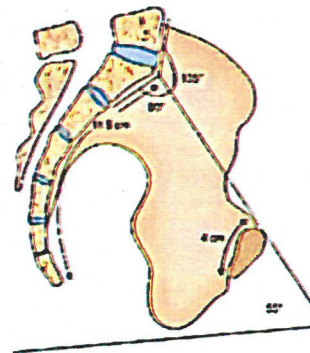
Diameters :

- AP = 13 cms.
- Transverse : 11 cms. It is the distance between 2 ischial tuberosities. It's also called bituberous diameter.
- If transverse diameter is < 8 cms then it is contracted.
- Posterior sagittal diameter : 7 cms.

Clinical measurement of bituberous diameter : Ideally 4 knuckles should pass between the two tuberosities.



Angle of inclination : Angle made by pelvic inlet with the horizontal. It is 55° .



Subpubic angle :

Angle between the 2 descending rami of pubic bone.

In male : Acute.

In female : Obtuse.

These clinical measurements are called as clinical pelvimetry.

- In primigravida's : Between 38 to 39 weeks.
- In multi gravida : At the onset of labour.

Note : Routine Clinical pelvimetry at the time of admission is not recommended by WHO.

Contracted pelvis

00:32:08

If any of the essential diameters of pelvis is shortened by 0.5 cm, OR

Contracted inlet ($OC < 10$ cm) OR

Contracted midpelvis ($IID \leq 8$ cms) OR

Contracted outlet (Bituberous diameter ≤ 8 cm).

It can be diagnosed by clinical pelvimetry.

mode of delivery : Always cesarean section

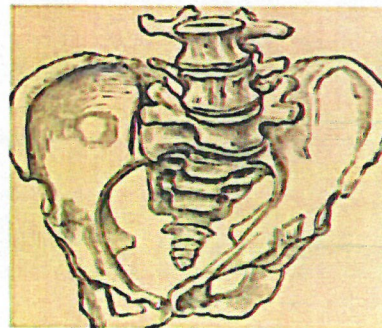
Whenever a female with contracted pelvis become pregnant

→ Always c-section has to be done. No role of trial of labor.

So, contracted pelvis is a indication for recurrent cesarean section.

Types of contracted pelvis :

1. Naegele's pelvis :
One Ala of sacrum is absent.
Only one Ala is present.
2. Robert's pelvis : Both the Ala of sacrum are absent.







management in both the cases is caesarean section.

Normal varieties of pelvis

00:37:08

Caldwell and mohoy classification :

	Gynecoid (m/c)	Android	Anthropoid	Platypelloid
Prevalence	50 %	20 %	25 %	5 %
Shape of inlet	Transverse oval. 	Heart shaped. 	Antero-posterior oval. 	Flag bowl like. 
TD & AP diameter of inlet	TD > AP	TD > AP	AP > TD	TD >>> AP
Ischial spine		Prominent		
Side walls	Parallel and broad	Convergent	Parallel & narrow	Divergent
Subpubic angle	Obtuse	Acute		

Pelvis and baby is normal. But, the pelvis is small for this baby.
CPD is a relative finding.

Here every time a female becomes pregnant doesn't mean caesarian has to be done.

Trial of labor can be done.

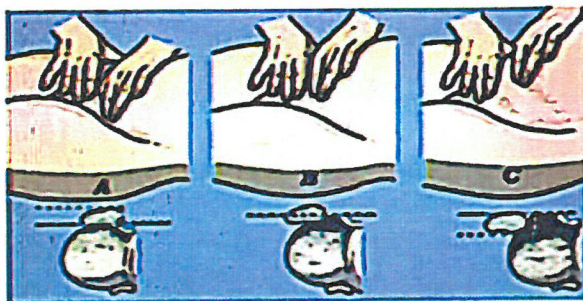
Clinical assessment is not best methods to assess CPD.

Best method to diagnose CPD : Trial of labor > MRI > clinical pelvimetry.

CPD can occur at level of inlet, mid pelvis and outlet.

CPD at the level of inlet can be diagnosed clinically by 2 methods :

1. Abdominal method.



2. Abdominal vaginal method/ muller munroker method/ Bimanual method :



Trial of labor :

Done only if there is mild CPD at level of inlet.

Not done in case of severe CPD.

Not done in previous cesarean section patient

mild CPD also.

Trial of labor is not equal to Trial of scar (trial of vaginal delivery in previous cesarean section patient) (VBSC).

ive space

management of CPD :

Trial of labor → Successful → Deliver vaginally.



unsuccessful (CPD at the level of mid pelvis/ outlet).



Cesarean section.

Go for direct cesarean section if severe CPD or previous h/o cesarean section.

No role of instrumental delivery.

CPD at the level of mid pelvis or outlet : Trial of labour fails.

CPD indicators during labor :

1. moulding + slow progression of labor.
2. Caput succedaneum + slow progress of labor.

MATERNAL ADAPTATION IN PREGNANCY

Changes in metabolic system in pregnancy

00:00:50

Pregnancy is an **anabolic state**.

BMR increases by 10 to 20%.

O₂ consumption : Pregnancy → ↑20%

Labor → ↑40-60%

Total serum Ca²⁺ ↓ : Ionized Ca²⁺ remains normal + non-ionized Ca²⁺ ↓

Fetus is dependent on mother for :

1. Glucose.
2. Thyroxine (For brain development).
3. Calcium (30g at term) :
 - a. Vitamin D increases.
 - b. Calcitonin increases.
 - c. PTH $\left\{ \begin{array}{l} \rightarrow \text{Decreased in early pregnancy.} \\ \rightarrow \text{Increased in late pregnancy.} \end{array} \right.$

Vitamin D requirement in pregnancy : 10 mcg(400 IU)/day.

Calcium requirement in pregnancy : 1200 mg/day.

Carbohydrate metabolism in pregnancy

00:04:26

Insulin resistance :

- Occurs in pregnancy to spare glucose for the fetus.
- mainly due to human placental lactogen (HPL).
- Other hormones : Estrogen, progesterone & cortisol.
- maximum between 24 to 28 weeks.
- Pregnancy is a diabetogenic state.

Glucose is transported by GLUT 1 & 3 (facilitated diffusion).

In pregnancy, if mother is in :

- Fasting state : Hypoglycemia as glucose is transported to fetus.
- Post-prandial state : Hyperglycemia d/t insulin resistance.

Active space