FEMALE PELVIS & FETAL SKULL

The objectives of this lecture

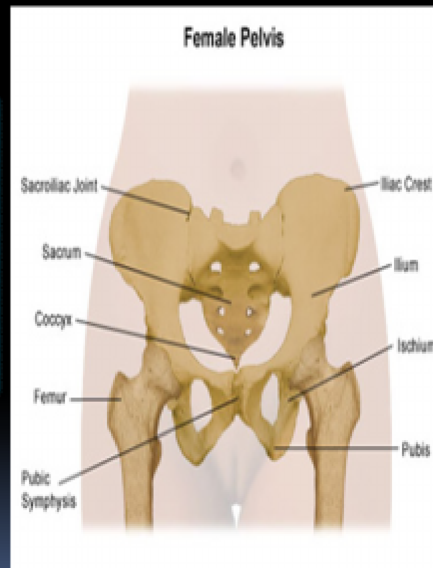
- a- Know types of female bony pelvis .
- b-Understanding anatomy of the bony pelvis ,it,s planes & diameters
- c- Discussing fetal skull bones & it's longitudinal & vertical diameters & it's effect on mechanism of labor.
- d-understanding the meaning of moulding ,caput succedaneum & cephal hematoma.

Types of bony pelvis

- 1- Gynaecoid pelvis :It is the normal female pelvis present in 40% of women .
- 2- Android pelvis : It is male characteristic pelvis on which the pelvic inlet resembles a triangle .
- 3- Anthropoid pelvis : On which the prim is narrow side to side but has along diameter antero-posteriorly with deep pelvic cavity .
- 4- Platypelloid pelvis : On which the prim is wide but rather flat oval .

BONY PELVIS

•Hip bone (Ilium, ischium and pubis)
•Sacrum
•Coccyx
Joined anteriorly by pubic symphysis
Posteriorly by sacro -iliac joint



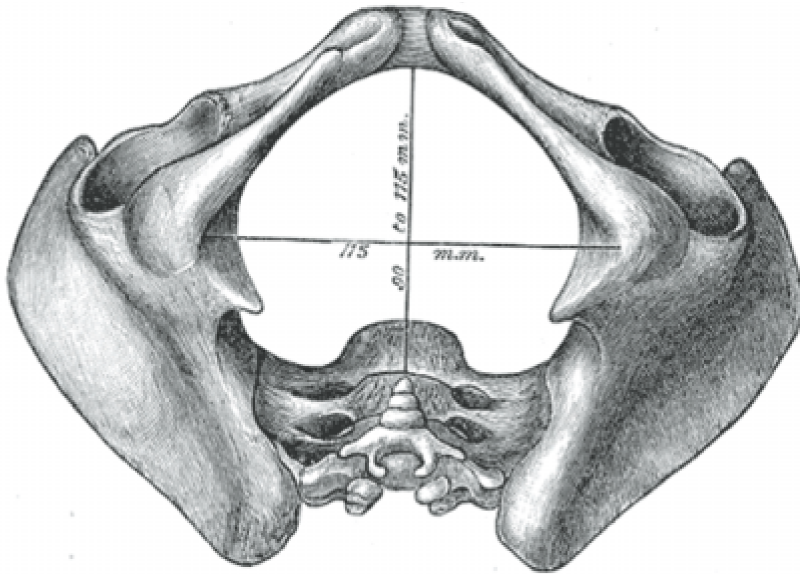
Lesser Pelvis (pelvis minor)

Also known as True Pelvis.

It is composed of inlet (brim), cavity, and outlet.

Cavity:- formed by the hip bone (pubic bones, ischium, ilium) and ✓ sacrum and consist of pelvic viscera – the urinary bladder, rectum, uterus and ovaries.

Outlet: diamond-shaped made up of the pubic bones, ischium, ✓ ischial tuberosities, sacrotuberous ligament, and 5th segment of sacrum.



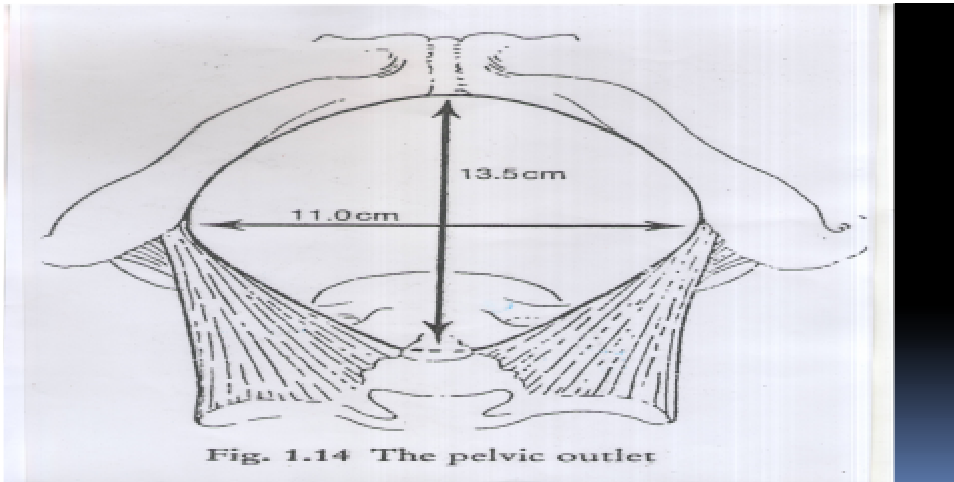
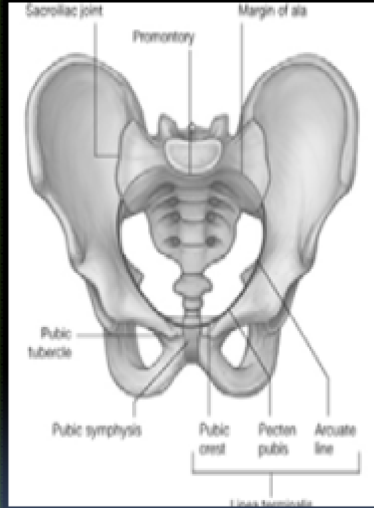


Fig. 1.14 The pelvic outlet

The Pelvic Inlet (Brim):-

Boundaries:-

- Sacral promontory,
- Ala of the sacrum,
- sacroiliac joints,
- iliopectineal lines,
- iliopubic eminencies,
- upper border of the superior pubic rami,
- pubic tubercles,
- pubic crests and
- upper border of symphysis pubis.

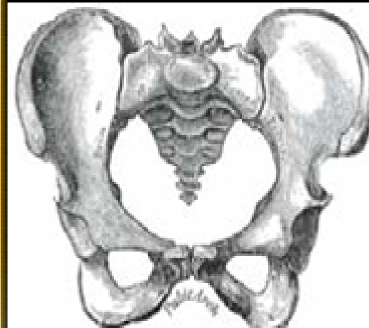


Measurement of pelvis

Pelvic inlet/ brim:-
A-P diameter:-it is the distance between mid point of sacral promontory to the mid point of upper border of pubic symphysis.

Transverse diameter:- distance between the iliopectineal lines.

Oblique diameter:- distance between one sacro–iliac joint to opposite ilio-pubic eminence.



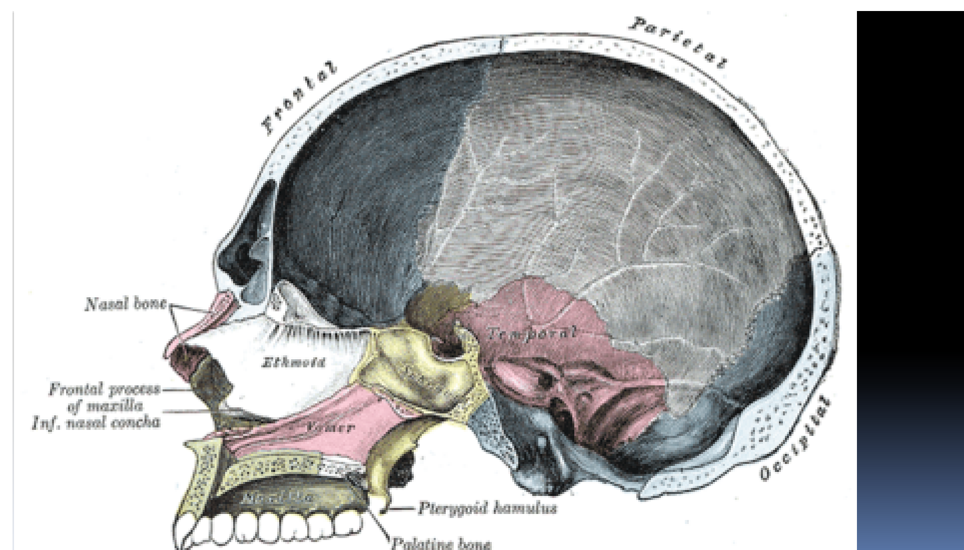
Landmark of Fetal skull

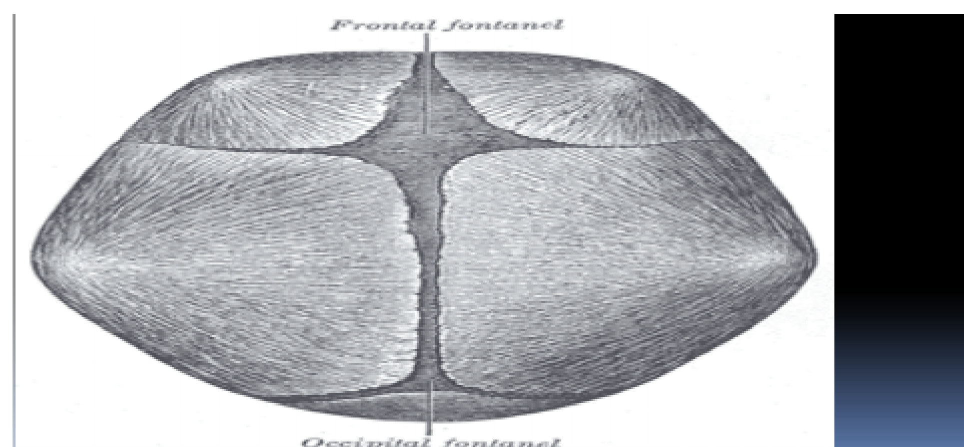
Occiput:- is the occipital bone/external occipital protuberance.

Sinciput:- is the forehead region of fetal head.

- <u>Parietal eminences</u>:- are the eminences of parietal bone on either side.
- <u>Mentum</u>:- is the chin.
- <u>Vertical point</u>:- is the center of sagittal suture.
- <u>Frontal point</u>:- is the root of nose.
- <u>Sub occiput</u>:- it is the junction fetal neck and Occiput.
- <u>Sub mentum</u>:- it is the junction between neck and chin.
- <u>Bi parietal</u>:- is the transverse distance between two parietal eminences.

<u>Bi temporal</u> :- is the distance between two lower end of coronal suture





SUTURES :

<u>Sagittal suture</u>:- This lies in between two parietal bone. •

<u>Coronal suture</u>:- This lies in between the frontal and parietal bone on either side. •

<u>Frontal suture</u>:- This lies in between two frontal bone. •

<u>Lambdoid suture</u>:- It lies in between the parietal and occipital bone on either side. •

CLINICAL IMPORTANCE OF SUTURE:- •

These suture permit gliding movement of one bone over other during moulding of the head in the vertex presentation , as a result the diameter of the head get smaller so passage of head through the birth canal become easier. •

Position of fontanelle and sagittal suture can identify attitude and position of vertex. •

From the digital palpation of the sagittal suture during labour, degree of internal rotation and degree of moulding of the head can be noticed. •

In deep transverse arrest, this sagittal suture lies transversely at the level of the ischial spines. •

<u>Area of skull</u> •

A. <u>Vertex</u>:- It is the quadrangular area bounded anteriorly by the bregma and coronal sutures behind by the lambda and the lambdoid sutures and laterally by the line passing through the parietal eminences. •

B. Brow:- It is an area bounded on one side by the anterior • fontanelle and the coronal sutures and on the other side by the root of the nose and supra-orbital ridges of the either side.

C. Face:- It is an area bounded on one side by the root of the nose • and the supra-orbital ridges and on the other by the junction of the floor of mouth with neck.

Anterior fontanelle or bregma:- •

It is a diamond shaped area of unossified membrane formed by • the junction of 4 suture.

The suture are:- •

Anteriorly:- frontal suture •

Posteriorly:- sagittal suture •

Laterally, on both side:-coronal suture. •

It is felt on fetal head surface as a soft shallow depression. •

It ossifies by 18 months after birth. •

Clinical importance:- •

1. Degree of flexion can be assessed from its position. If on vaginal • examination it is felt easily, it indicates the head is not well flexed.

2. It helps in the moulding of head. •

3. From its position, internal rotation of the head can be assessed. •

4. ICP can be roughly assessed from its condition after birth. • Depression in dehydration and bulging in raised ICP.

5. CSF can be collected from its lateral angles from the lateral • ventricles

Posterior fontanelle or lambda: •

It is the triangular depressed area at the junction of the three ✓ suture.

The suture are:-

Anteriorly:-sagittal suture

Posteriorly:-2 lambdoid sutures at both side.

It ossifies as term. ✓

Clinical importance:-

1-From its relation of the maternal pelvis, position of vertex is .١ determined.

2- Internal rotation can be assessed from its location .٢

Degree of flexion can be assessed from its position. On vaginal ✓ examination if it is felt easily and anterior fontanelle is not felt, this indicates good flexion of the fetal It is the triangular depressed area at the junction of the three suture.

The suture are:-

Anteriorly:-sagittal suture

Posteriorly:-2 lambdoid sutures at both side.

It ossifies as term. ✓

Clinical importance:-

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Diameter of skull

Diameter of skull

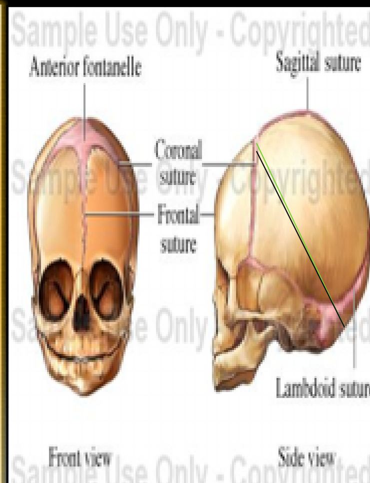
The engaging diameter of the fetal skull depends on the degree of the flexion of the presenting part.

A. The antero-posterior diameter which may be engaged are:-

1.Sub-occipito bregmatic:-

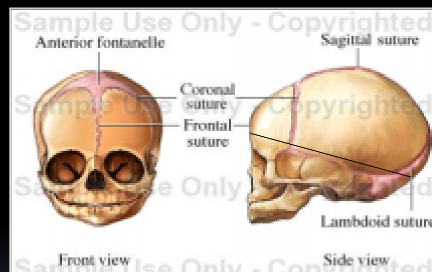
It extends from the nape of the neck to the centre of anterior fontanelle.
Length:-9.5cm
Attitude:-complete flexion
Presentation:-Vertex.

Clinical importance:-
Smallest diameter.



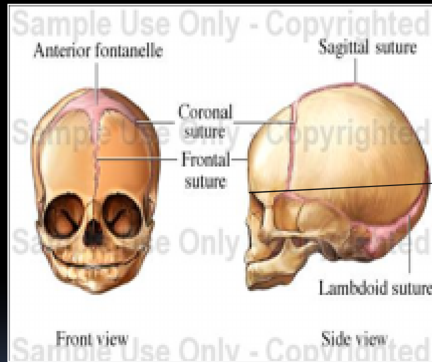
2.Suboccipito frontal:-

It extends from the nape of the neck to root of nose.
Length:-10cm
Attitude:-Incomplete flexion.
Presentation:-Vertex.



3.**Occipito-frontal**:-
Extends from the occipital eminence to the root of the nose (Glabella).
Length:-11.5cm
Attitude:-Marked deflexion
Presentation:-vertex

Clinical importance:-
This engaging diameter may give rise to prolonged labour.



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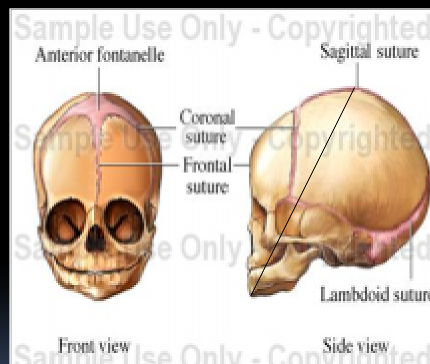
4.**Mento-vertical**:-
It extends from the mid-point of the chin to the center of the sagittal suture.
Length:-14cm
Attitude :- Partial extension.
Presentation:- Brow

Clinical importance:-
In this engaging diameter, baby has to be delivered by caesarean section.



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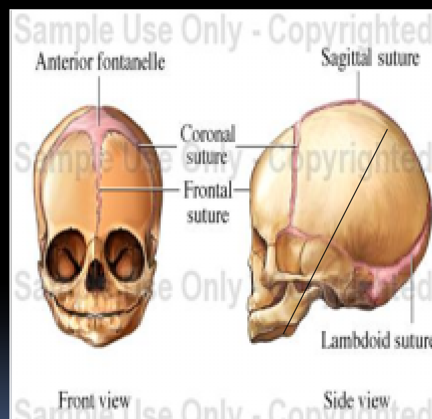
5.Sub-mento vertical:-
It extends from the junction of the floor of the mouth and neck to the center of the sagittal suture,
Length:-11.5cm
Attitude: -Incomplete extension.
Presentation:-Face

Clinical importance:-
In this engaging diameter, baby has to be delivered by caesarean section.



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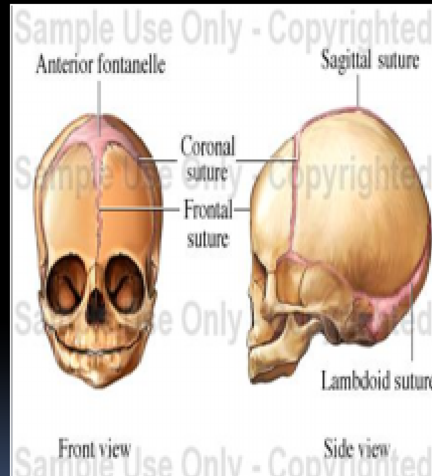
6. Sub-mento bregmatic:-
It extends from the junction of the floor of the mouth and Neck to the centre of bregma.
Length:-9.5cm
Attitude:-Complete extension
Presentation:-Face

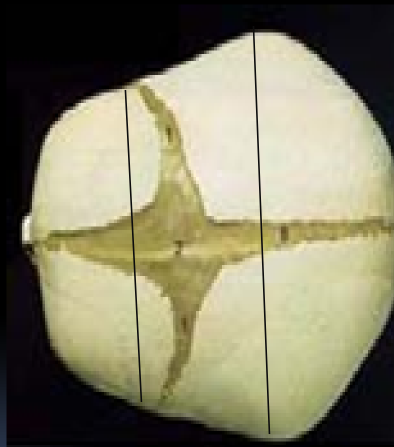
Clinical importance:-
In this engaging diameter, baby has to be delivered by caesarean section.



B. The transverse diameter are:-

1. Bi parietal diameter:-
It extend between 2 parietal eminences.
Length:-9.5cm
Attitude:-irrespective of position of head this diameter always engages.

2. Bi temporal diameter:-
Distance between the anterior-inferior ends of the coronal suture.
Length:- 8.5 cm



FETAL SKULL CHANGES IN LABOUR

Moulding:-It is the changes in shape of the head in vertex • presentation during labour while passing through the resistant birth canal.

Mechanism:- •

1. Overlapping of cranial bones at the membranous joints due to compression of the engaging diameter of the head. •

2. It is physiological, harmless and disappears within a few hours after birth. •

CAPUT SUCCEDANEUM •

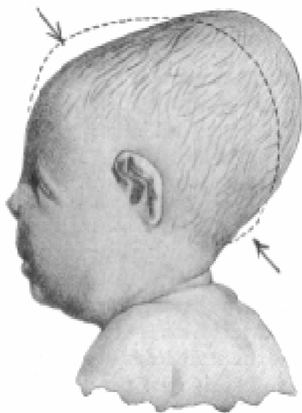
It is localized area of edema on fetal scalp on vertex presentation due to pressure effect of dilating cervical ring and vaginal introitus. •

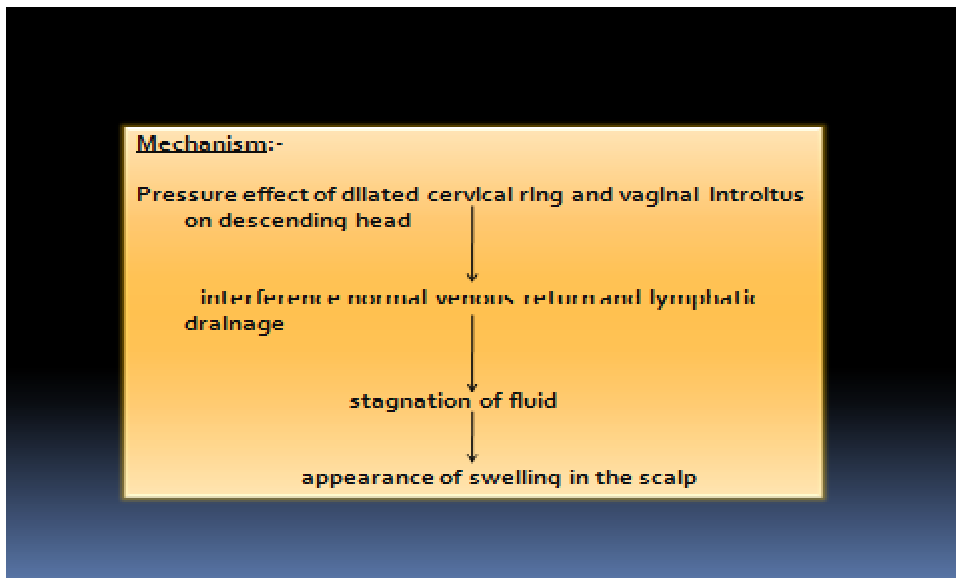
Characteristics:-

It is physiological, present at birth and disappears within 24 hours. .١

It is soft, diffuse and pits on pressure. .٢

No underlying skull bone fracture.





Cephalhematoma

It is a collection of blood between periosteum and skull bone which is limited by the periosteal attachments at the suture lines.

Characteristics:-

Appears ae r 12 hours of birth.

Limited by suture lines.

Tends to grow larger.

Disappears within 6-8 weeks.

It is circumscribed, soft and non pitting.

May be associated with skull bone fracture.

Treatment:- No treatment required. The blood is absorbed and the swelling subside.

DIFFERENCES

CAPUT SUCCEDANEUM	CEPHAL HAEMATOMA
1. Present at birth on normal vaginal delivery.	1. Appears within a few days after birth on normal or forceps delivery.
2. May lie on sutures, not well defined.	2. Well defined by suture, gradually developing hard edge.
3. Soft, pits on pressure.	3. soft, elastic but does not pits on pressure.
4. Skin ecchymotic.	4. No skin change.
5. Size largest at birth , gradually subsides within a day.	5. Become largest after birth and then disappears within 6-8 weeks to few months.
6. No underlying skull bone fracture.	6. May underlying skull bone fracture.
7. No treatment required.	7. No treatment required.

REFERENCE

-OBSTETRIC BY TEN TEACHERS

-**DEWHURST,S TEXT BOOK OF OBSTETRIC & GYNECOLOGY**

-A COLOUR ATLAS OF HUMAN ANATOMY