FETAL SKULL

INTRODUCTION

- The fetal head is large in relation to the fetal body compared with the adult
- Adaptation between the skull and the pelvis is necessary to allow the head to pass through the pelvis during labour without complications

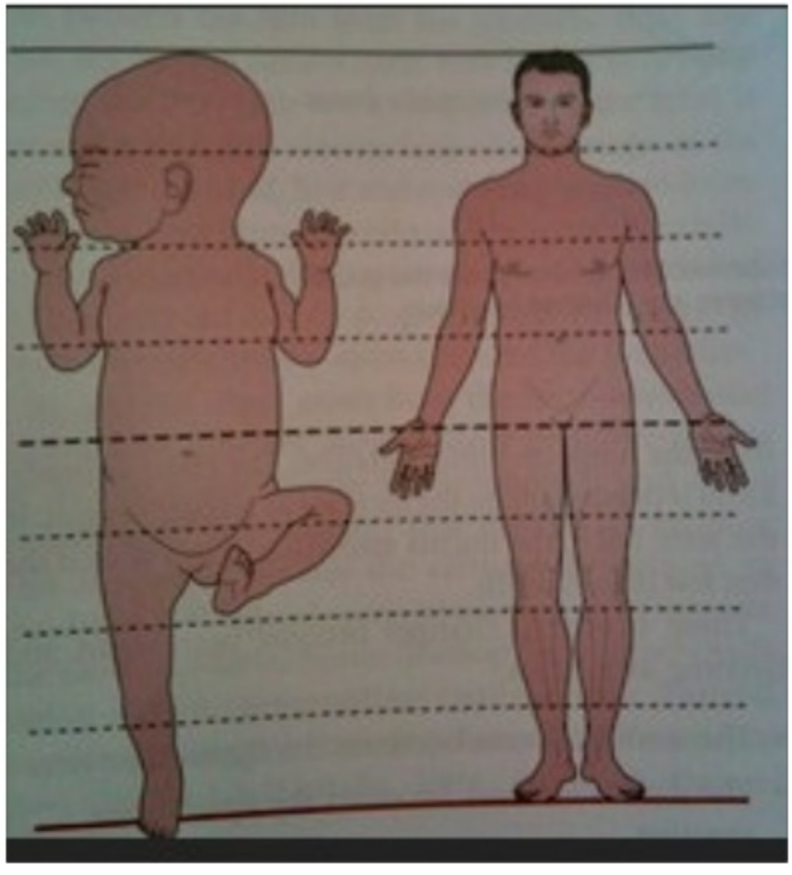
OBJECTIVE

- Describe the regions of fetal skull
- Describe the bones that make up the vault of the fetal skull
- Describe the sutures and fontanelles
- Describe the various diameters of the fetal skull and their significance

SKULL

FETAL SKULL

ADULT SKULL

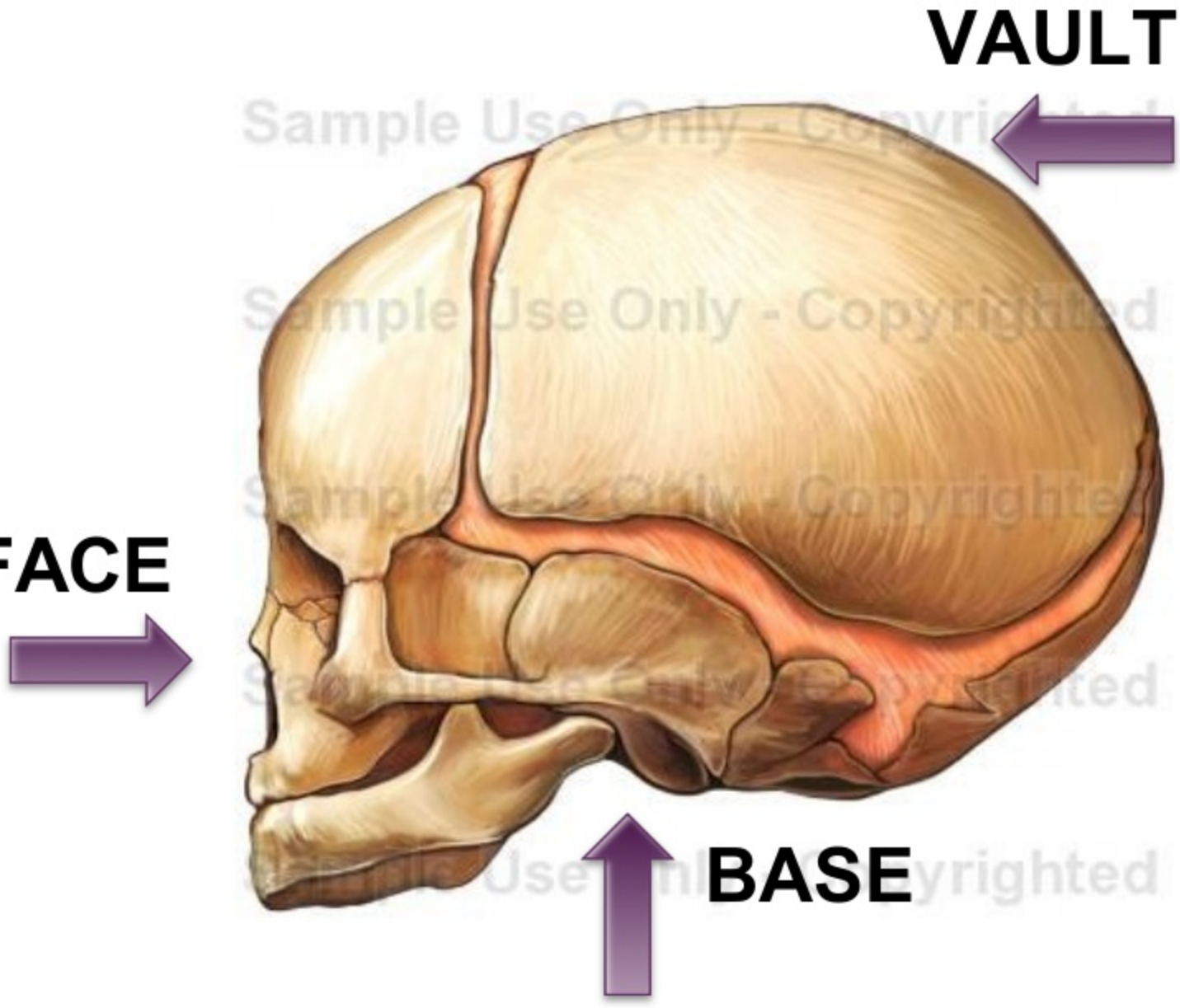


- Comparison of a baby's proportions to those of an adult
- The baby's head is wider than the shoulders and one-quarter of the total length

WHAT IS FETAL SKULL ?

- The skull bones encase and protect the brain
- The fetal skull has 3 major parts and
  - Vault of cranium (Roof)
  - Face
  - Base (Cranium)

FETAL SKULL



VAULT

Is the large , dome shaped part above an imaginary line drawn between the orbital ridges and the nape of the neck

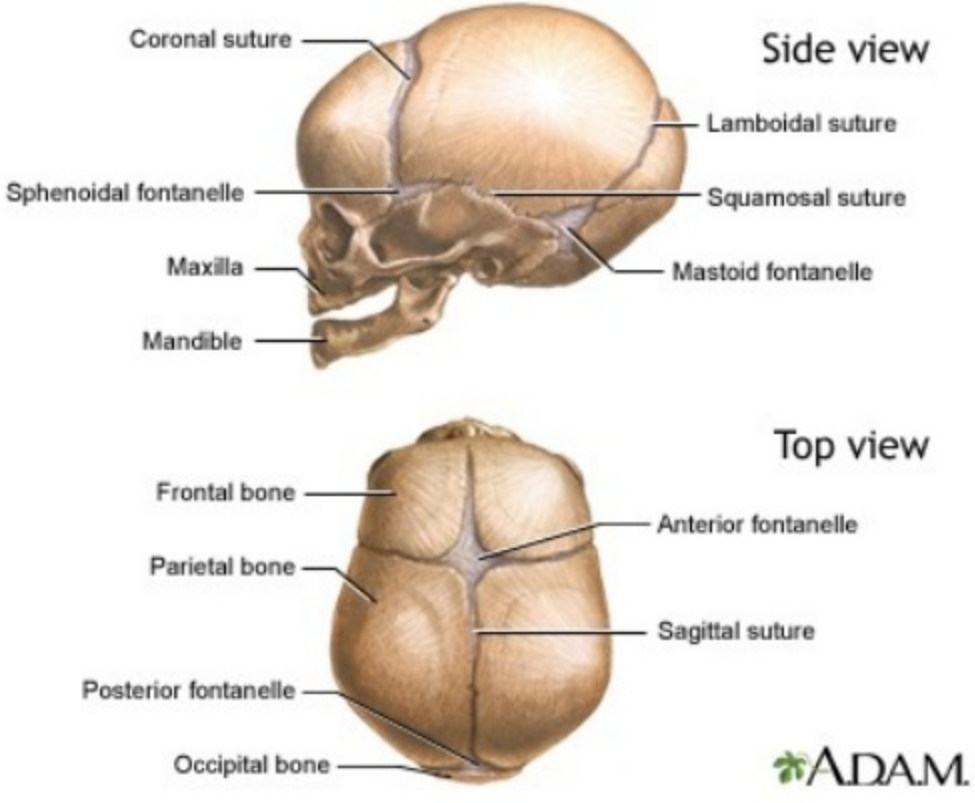
BASE

The base comprises bones that are firmly united to protect the vital centres in the medulla oblongata

FACE

Is composed of 14 small bones that are also firmly united and non-compressible

THE BONES OF THE VAULT



- 2 frontal bone
- 2 parietal bone
- 1 occipital bone
- 2 temporal bone

2 FRONTAL BONE

- Forms the forehead or ***sinciput***
- The ossification centre of each bone is the frontal ***eminence***
- The frontal bones fuse into a single bone by age 8 years of age.

2 PARIETAL BONE

- Which lie on either side of the skull and occupy most of the skull
- The ossification centre of each of these bones is called the ***parietal eminence***

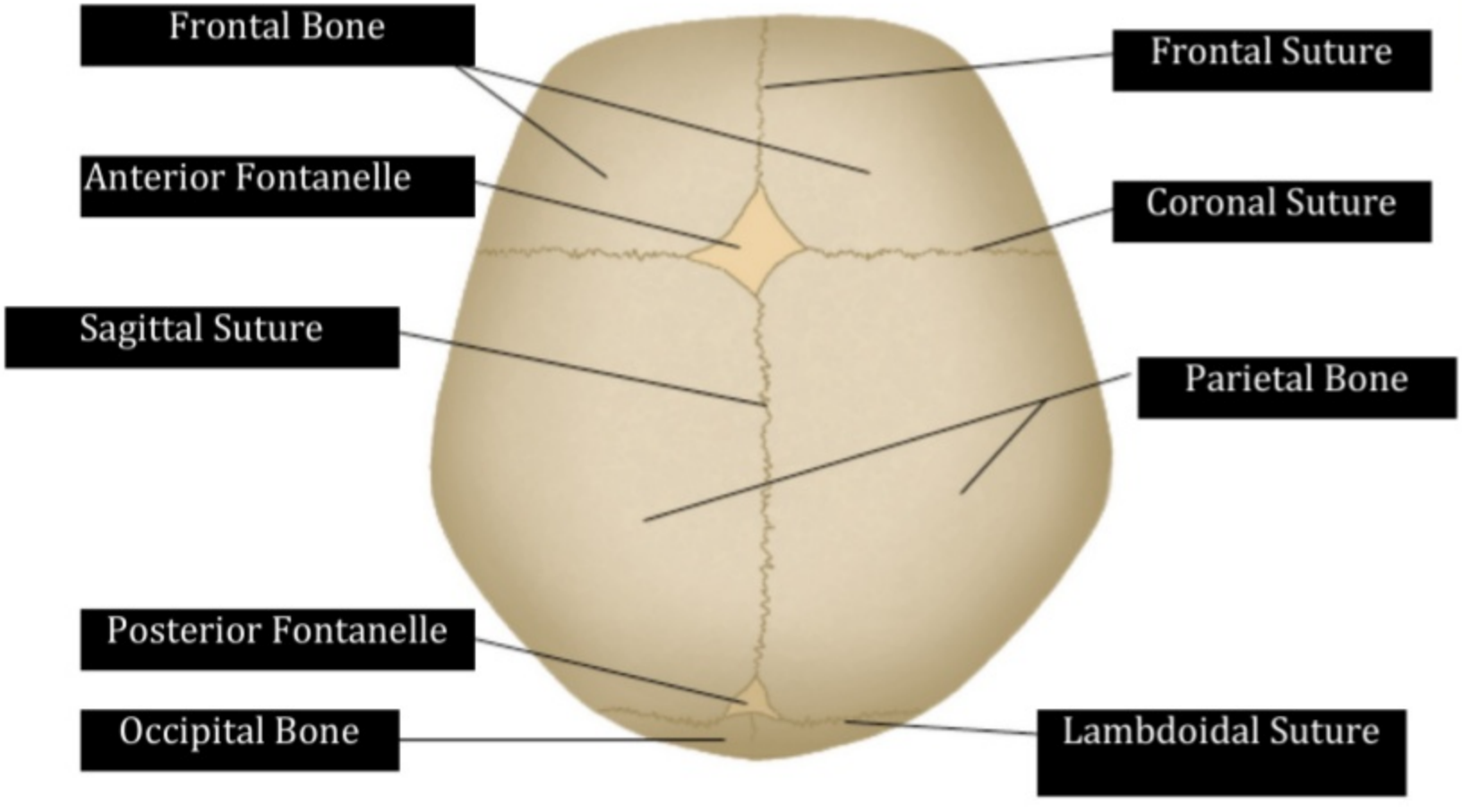
1 OCCIPITAL

- Which forms the back of the skull and part of its base
- Part of it contributes to the base of the skull as it contains the foramen magnum, which protects the spinal cord as it leaves the skull.
- The ossification centre is the occipital protuberance

2 TEMPORAL BONE

- On both side of head
- Forms part of the Vault
- (Not significant in obstetrics)

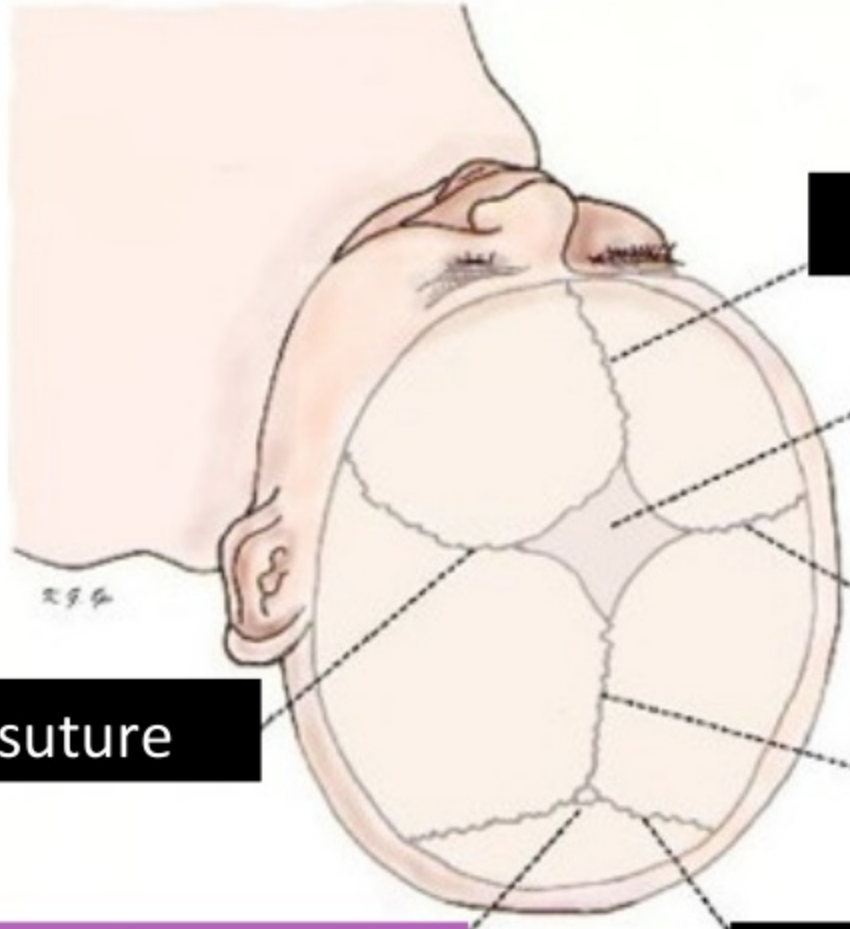
Normal Skull of the Newborn



SUTURES

- Are spaces between the bones of the skull
- Two or more sutures meet, a ***fontanelle***
- These sutures and fontanelle allow for molding of the fetal head during labour

VIEW FROM TOP OF THE HEAD



Frontal suture

Anterior fontanelle

Coronal suture

Coronal suture

Sagittal suture

Posterior fontanelle

Lambdoidal suture

SUTURES

Frontal suture

Located between the 2 frontal bones

Coronal suture

Located between the frontal and parietal bones

SUTURES

Lamdoidal suture

Located between the 2 parietal bones and the occipital bone

Sagittal suture

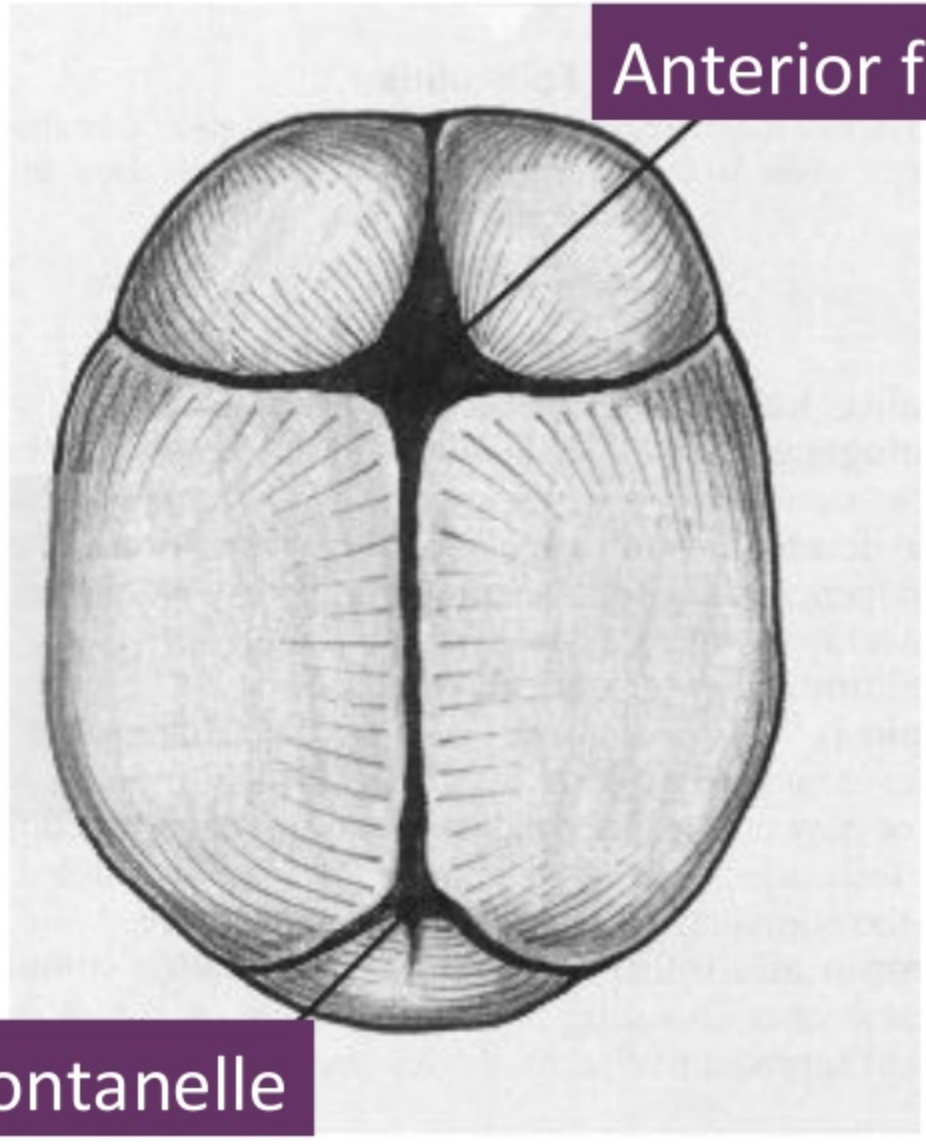
Located between the parietal bones divides the skull into left and right halves

FONTANELLE

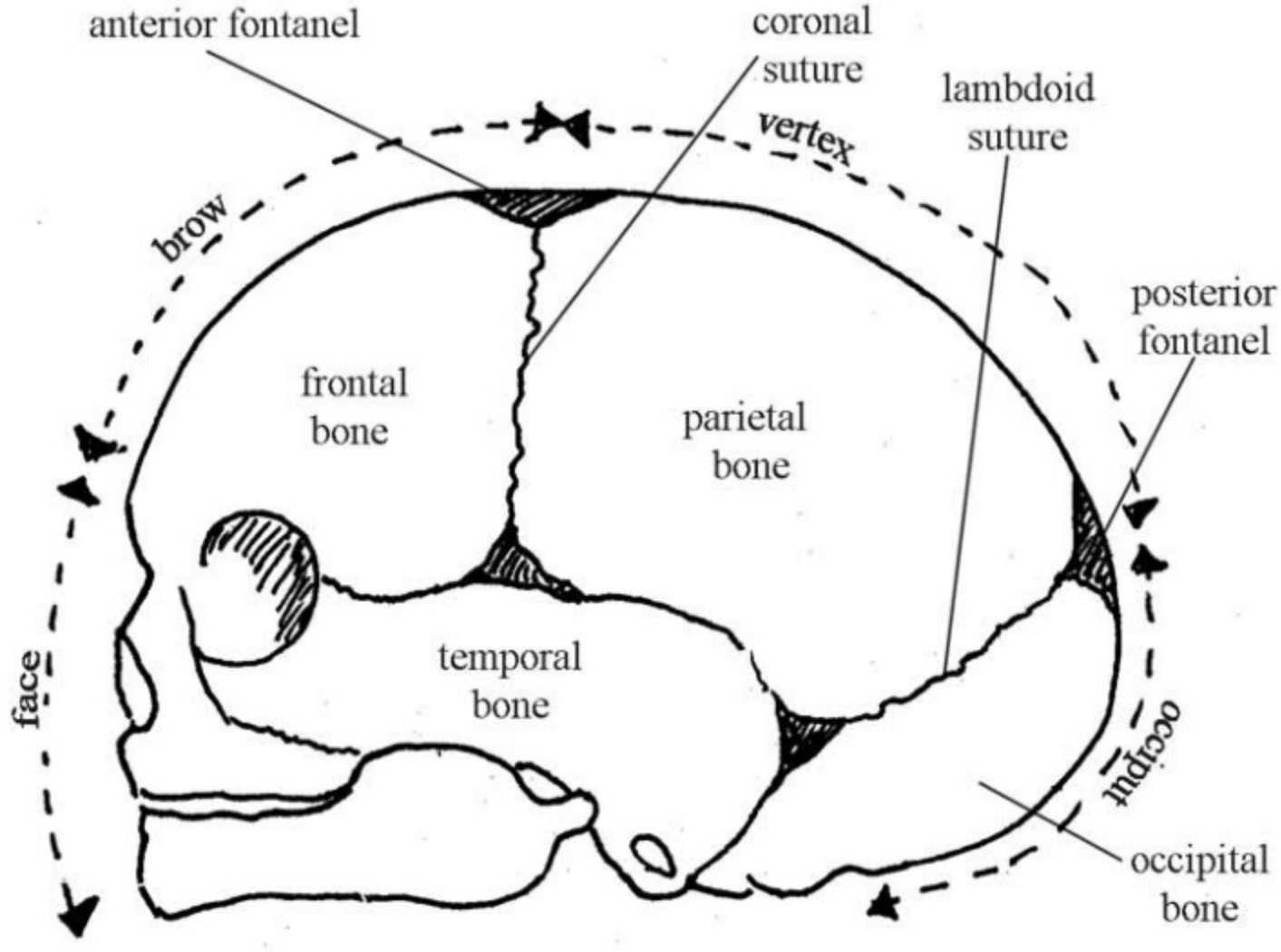
- A fontanelle is a space created by joining of two or more suture
- 6 in number, 2 are of obstetric significance

    1. Anterior fontanelle
    2. Posterior fontanelle

ANTERIOR FRONTANELLE (BREGMA)	POSTERIOR FRONTANELLE (LAMBDA)
Large diamond shape	Small triangular shaped
Situated at junction of the sagittal , coronal and frontal sutures	Situated at the junction of lambdoidal sutures
Closed at 18 months	Closed at 6 -12 weeks
Soft membrane floor	Bony floor


Anterior fontanelle
Posterior fontanelle

REGION FETAL SKULL



REGION FETAL SKULL

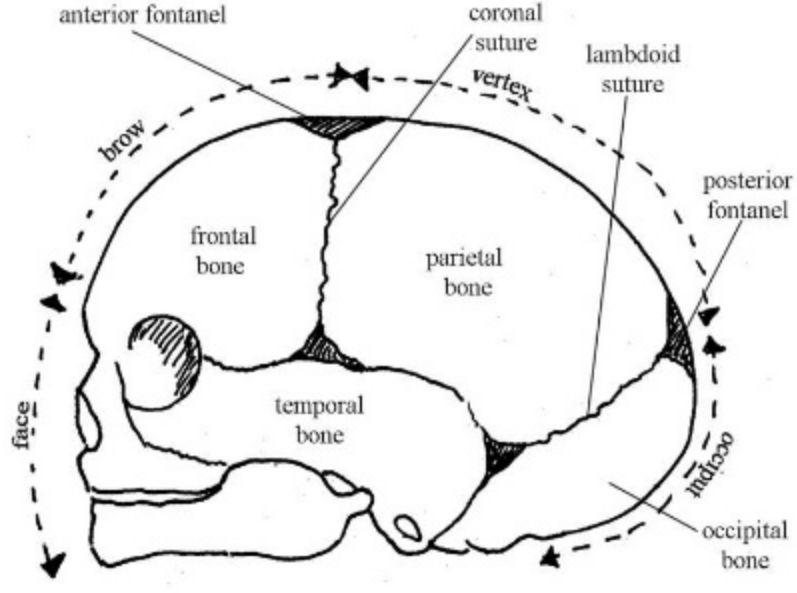
Divided into 4 region :

1. Occiput region
2. Vertex region
3. Forehead or sinciput region
4. Face

REGIONS OF FETAL SKULL

VERTEX

- Bounded by postetior fontanelle, the two parietal bones eminences and the anterior fontanelle



SINCIPUT

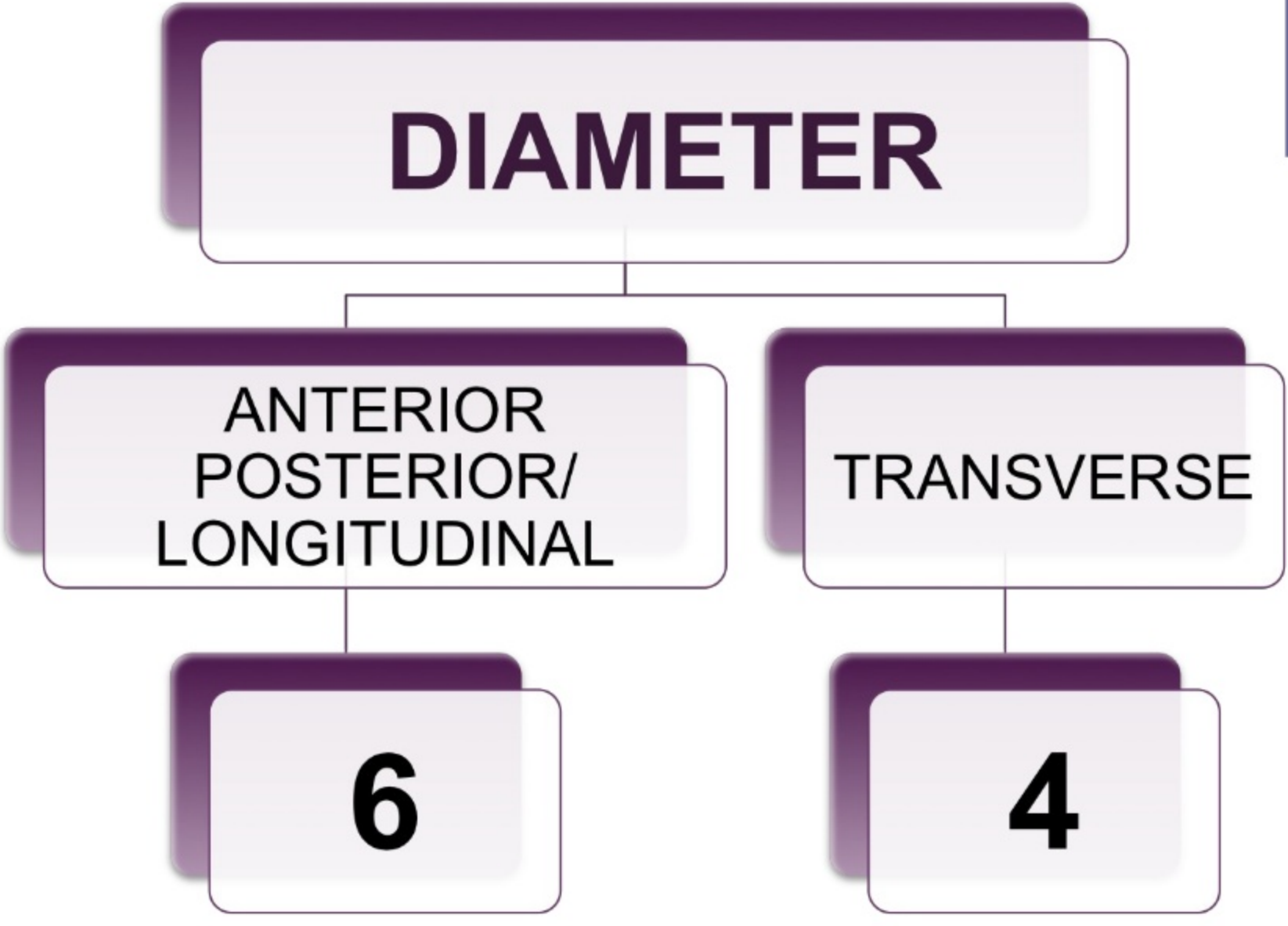
- Extends from the anterior fontanelle and the coronal suture to the orbital ridges

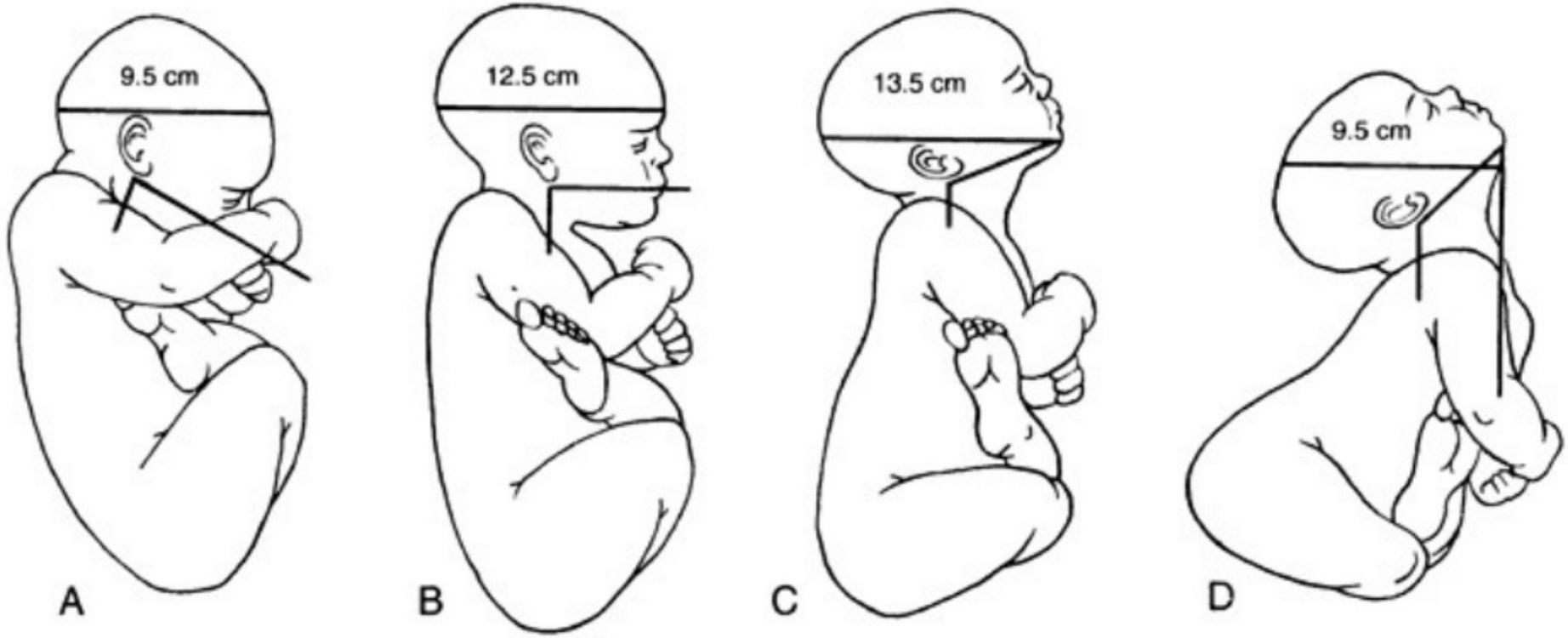
OCCIPUT

- Lies between the foramen magnum and the posterior fontanelle . The parts below the occipital protuberance (landmark) is known as the sub-occipital region

FACE

- Extends from the upper ridge of the eye to the nose and mentum (lower jaw)


DIAMETER
ANTERIOR POSTERIOR/ LONGITUDINAL
TRANSVERSE
6
4


9.5 cm
12.5 cm
13.5 cm
9.5 cm
A
B
C
D

ANTERIOR POSTERIOR/ LONGITUDINAL

Sub-occipitobregmatic (SOB)

- Diameter (9.5 cm)
- Measure from below the occipital protuberance to the centre of the anterior fontanelle or bregma
- Attitude : Head is complete flexion
- Presentation : Vertex

Sub-occipitofrontal (SOF)

- Diameter 10cm
- Measured from below the occipital protuberance to the centre of the frontal suture
- Attitude : Incomplete felxion
- Presentation : Vertex

The occipitofrontal (OF)

- Diameter 11.5cm
- Measured from the occipital protuberance to the root of the nose
- Attitude : Head extend
- Presentation :

The mentovertical (MV)

- Diameter 13.5
- Measured from the point of the chin to the highest point on the vertex
- Attitude : Head
- Presentation : Brow

The sub-mentovertical (SMV)

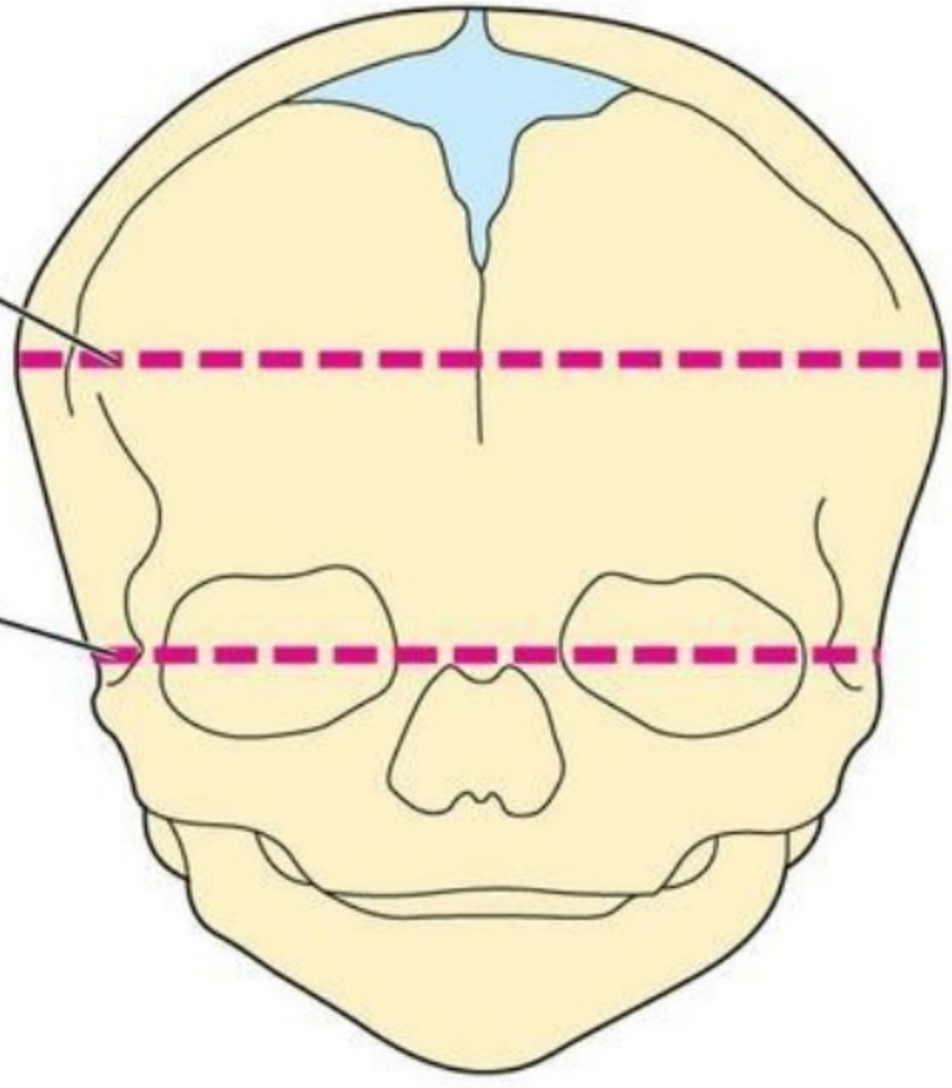
- Diameter 11.5cm
- Measured from the point where the chin joins the neck to the highest point on the vertex
- Attitude : Head incompletely extend
- Presentation : Face

The sub-mentobregmatic (SMB)

- Diameter 9.5cm
- Measured from the point where the chin joins the neck to the centre of the bregma (anterior fontanelle)
- Attitude : Head complete extend
- Presentation : Face

Bi-parietal diameter 9.5CM

Bi-temporal Diameter 8.2cm



TRANVERSE DIAMETERS OF FETAL SKULL

Biparietal diameter

- Diameter : 9.5cm
- Is between the two parietal eminence

Subparietal diameter

- Diameter : 9cm
- Above the parietal eminence to below the opposite eminence

Bi-temporal diameter

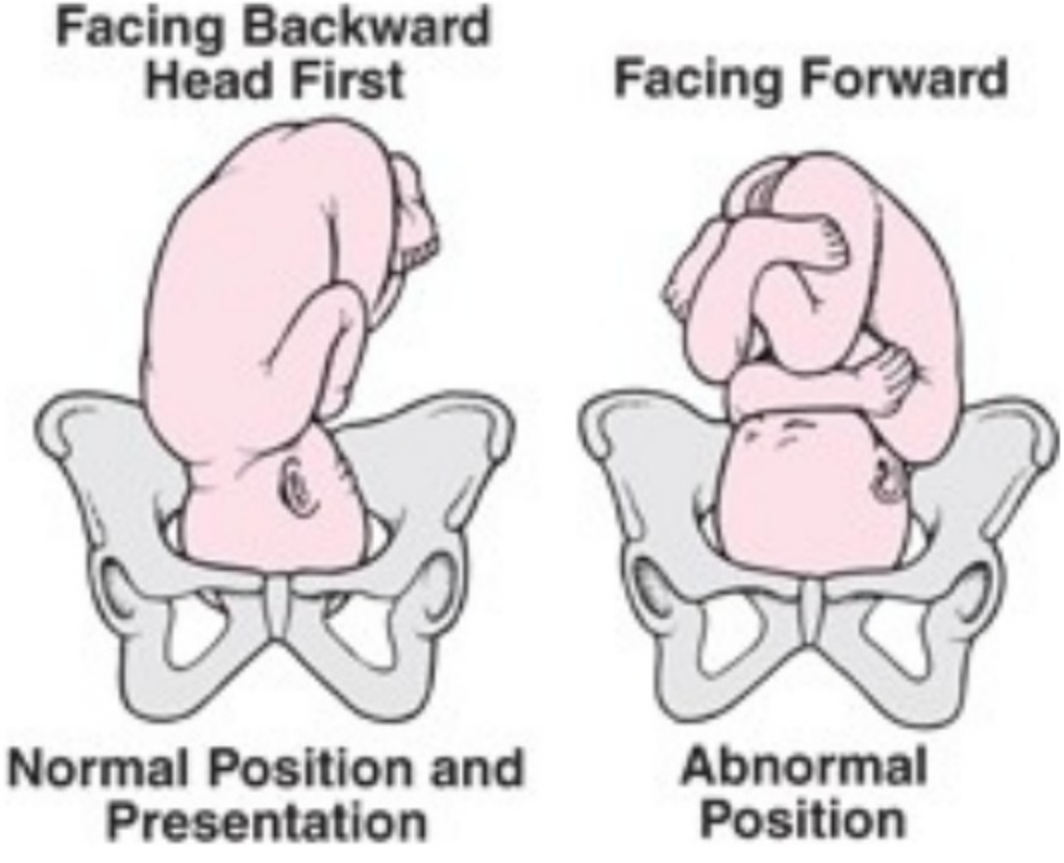
- Diameter : 8.2cm
- The diameter between the two furthest points of the coronal suture at the temples

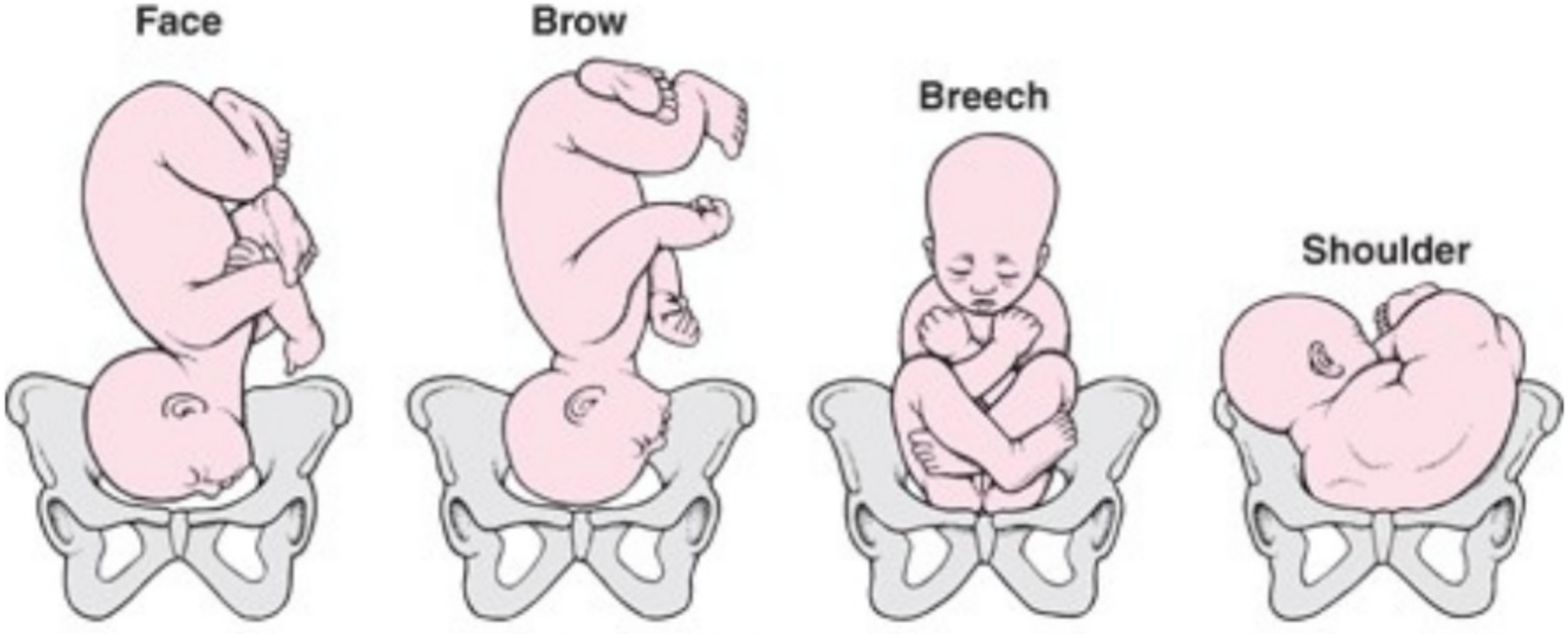
Bi-mastoid diameter

- Diameter : 7.5cm
- Between the tips of the mastoid processes

CIRCUMFERENCE/ THE PRESENTING AREA

Attitude of the head	Circumference	Shape of circumference
Well flexed	29cm	Round 
Deflexed	34.5	Oval 
Partial extension	38	Round 


Facing Backward
Head First
Facing Forward
Normal Position and
Presentation
Abnormal
Position



Abnormal Presentations

CONCLUSION

- It is important for midwife to learn about the fetal skull by knowing the landmarks will enable them to estimate the progress of labour.
- Midwife also can evaluates the presentation and progression of the fetal skull through these structures.

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