



# Human Anatomy - 2<sup>nd</sup> year



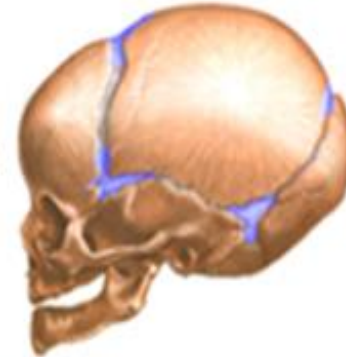
## Neonatal skull Lecture (5)

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# Objective

- \* To identify the Features of neonatal skull
- \* List and describe differences between adult and skull neonate

Fontanelles  
in blue



Minutes after birth

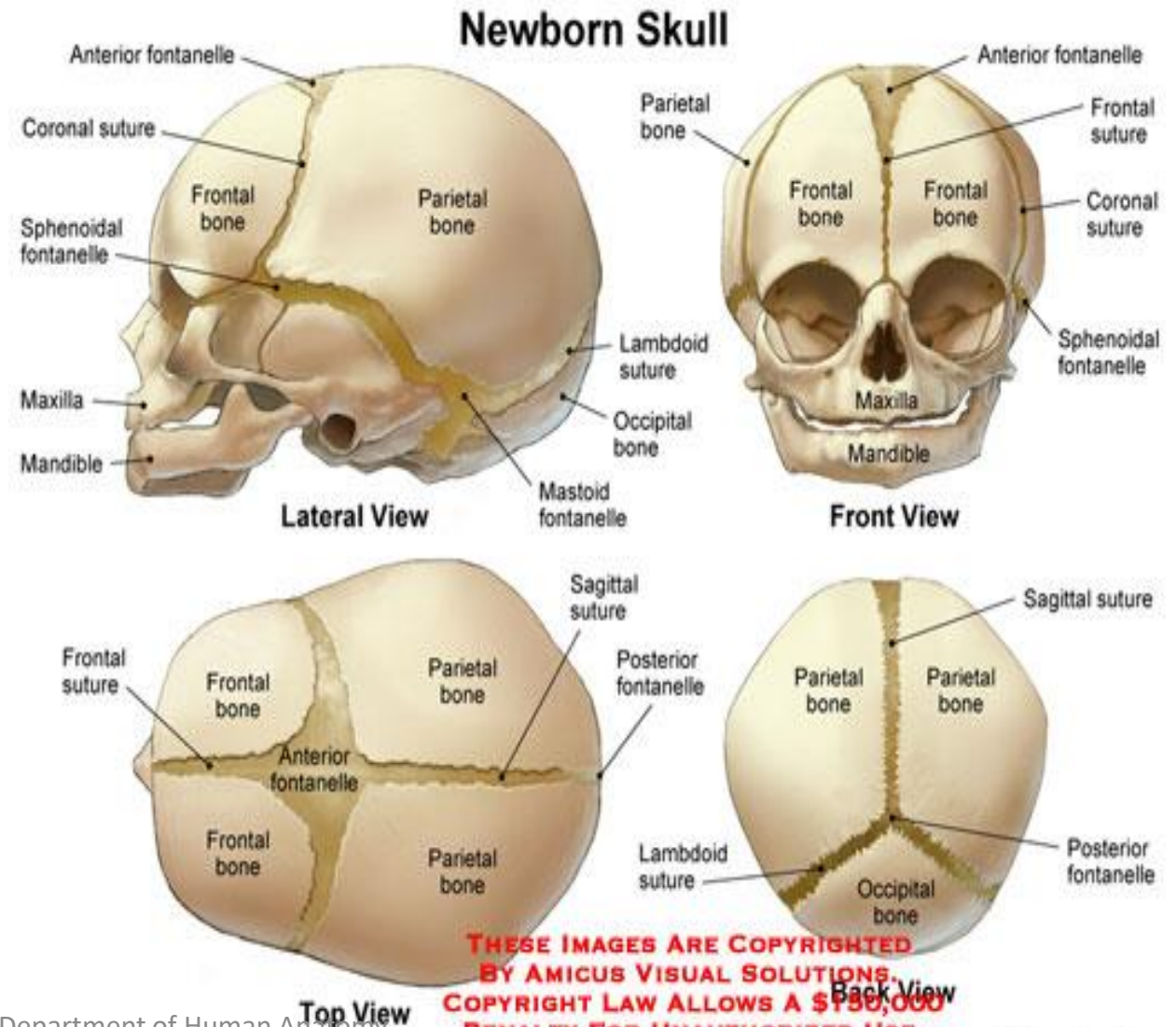


After 24 hours

# Neonatal skull

The major bones that compose the skull of a newborn include the following:

- 2 frontal bones
- 2 parietal bones
- 1 occipital bone



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# Features of the bones

☠ The bones of the skull are smooth and uni-laminar, (no diploe )

☠ Most of the skull bones are ossified at birth, but the process is incomplete, and the bones are mobile on each other, and connected by suture.



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# Features of the bones

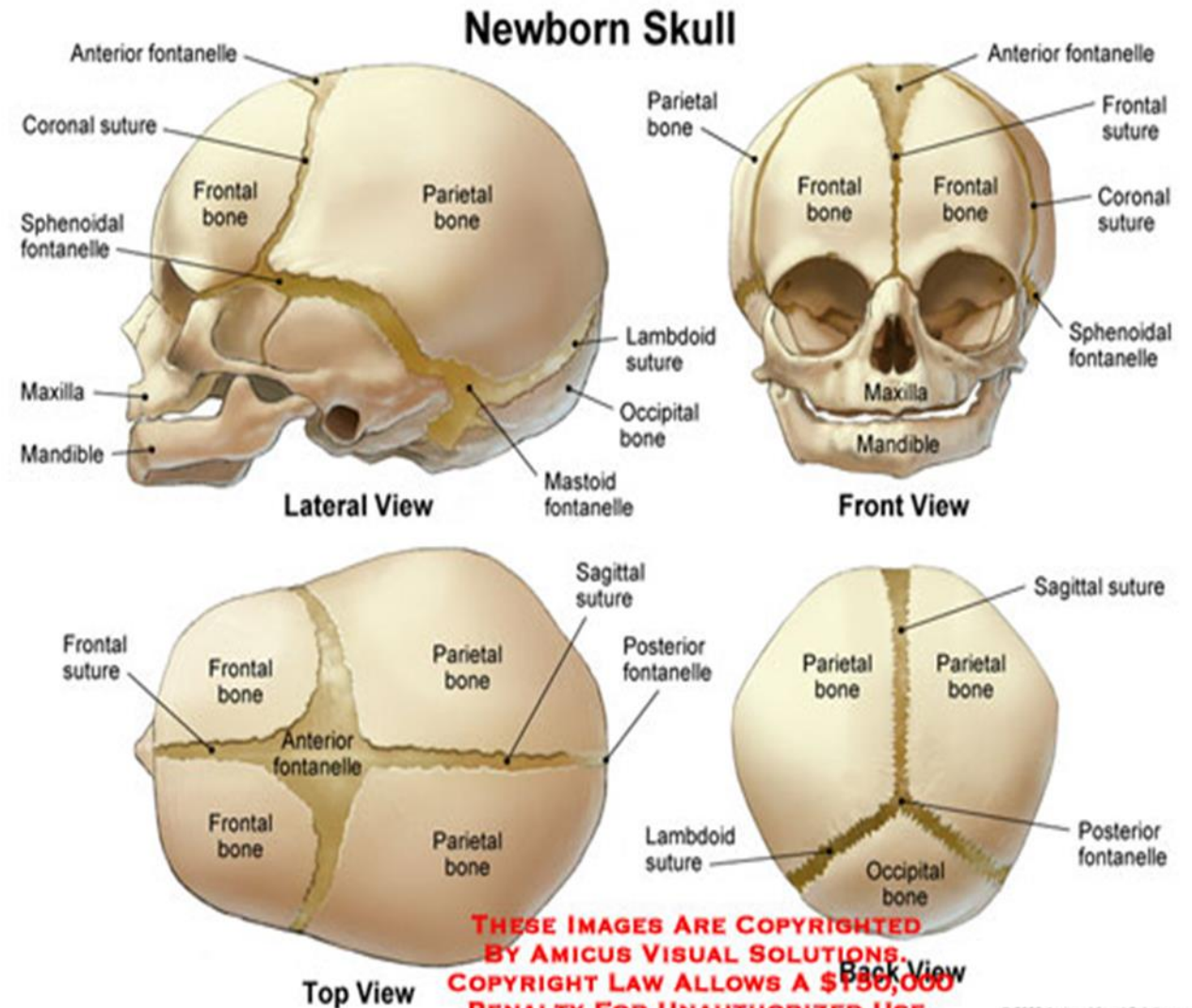
**A. Metopic suture( Frontal ) .**

Extends between the two frontal bone plates .

**B. Coronal suture.** Extends between frontal bone parietal bones

**C. Sagittal suture.** between the two parietal bones .

**D. Lambdoid suture.** Extends across the back of the head between parietal bones and occipital bone.



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# What is importance of sutures?

**Answer:**

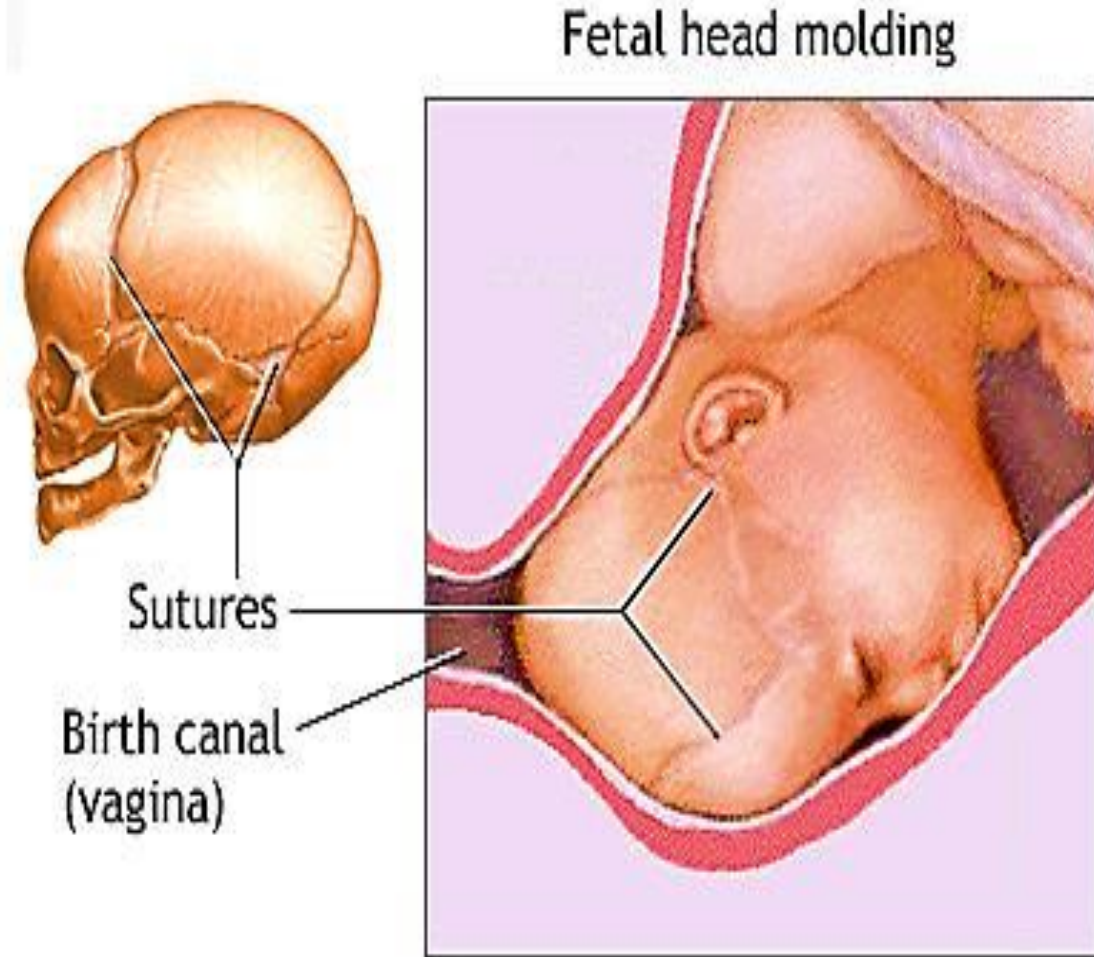
- \* Allow the bones to move ( Molding process )during the birth process .
- \* Act like an expansion joint, allowing the bone to enlarge evenly as the brain grows and the skull expands, resulting in a symmetrically shaped head.



# Molding

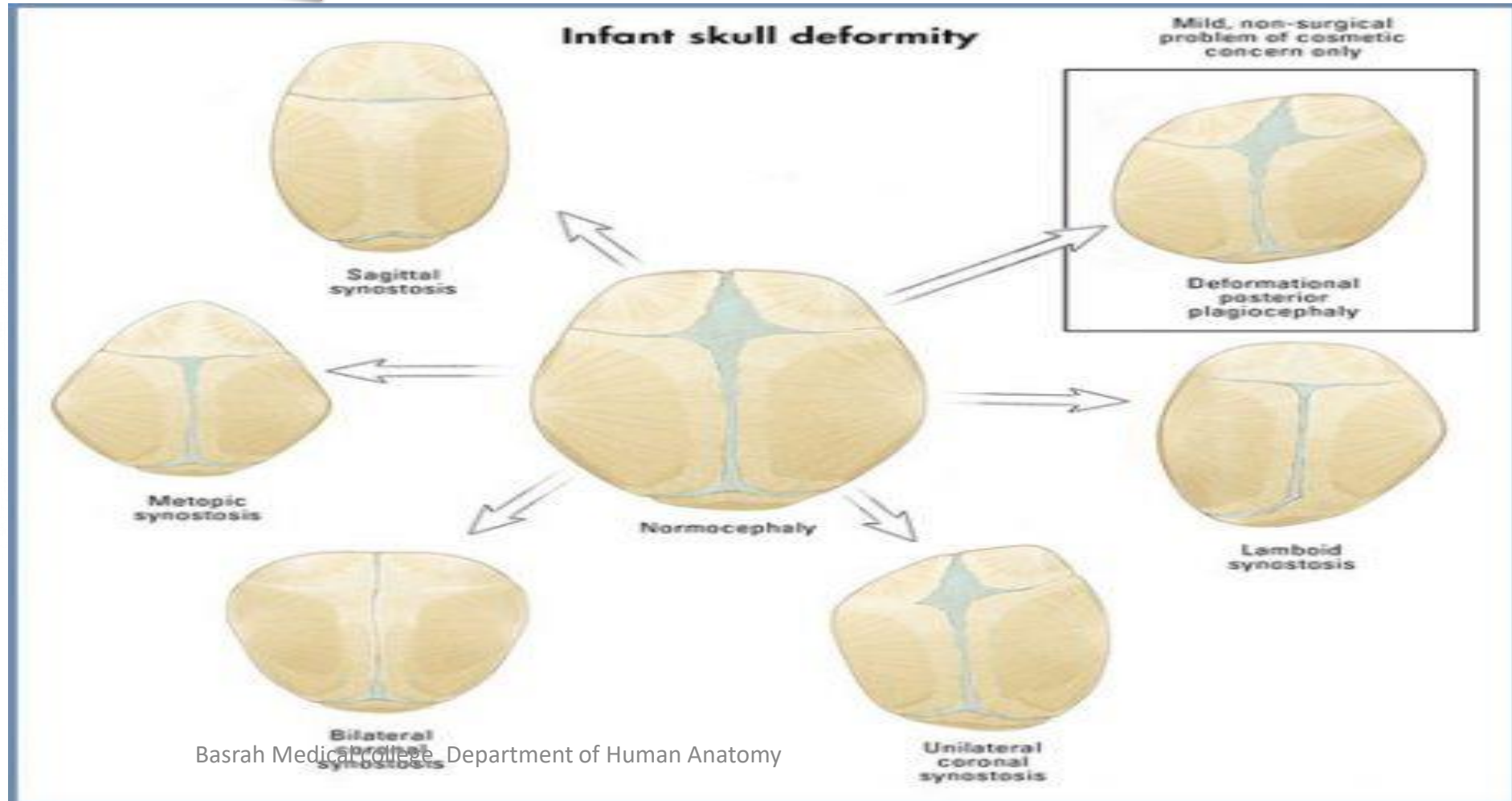
**It is reduction in the diameter of fetal skull which encourage progress of delivery through the rigid maternal pelvis without harming fetal brain.**

**Skull bones are over ride ➤ each other to reduce head circumference.**



# Question : What happen If any of the sutures close too early?

Answer : This may force growth to occur in another area or direction, resulting in an abnormal head shape.

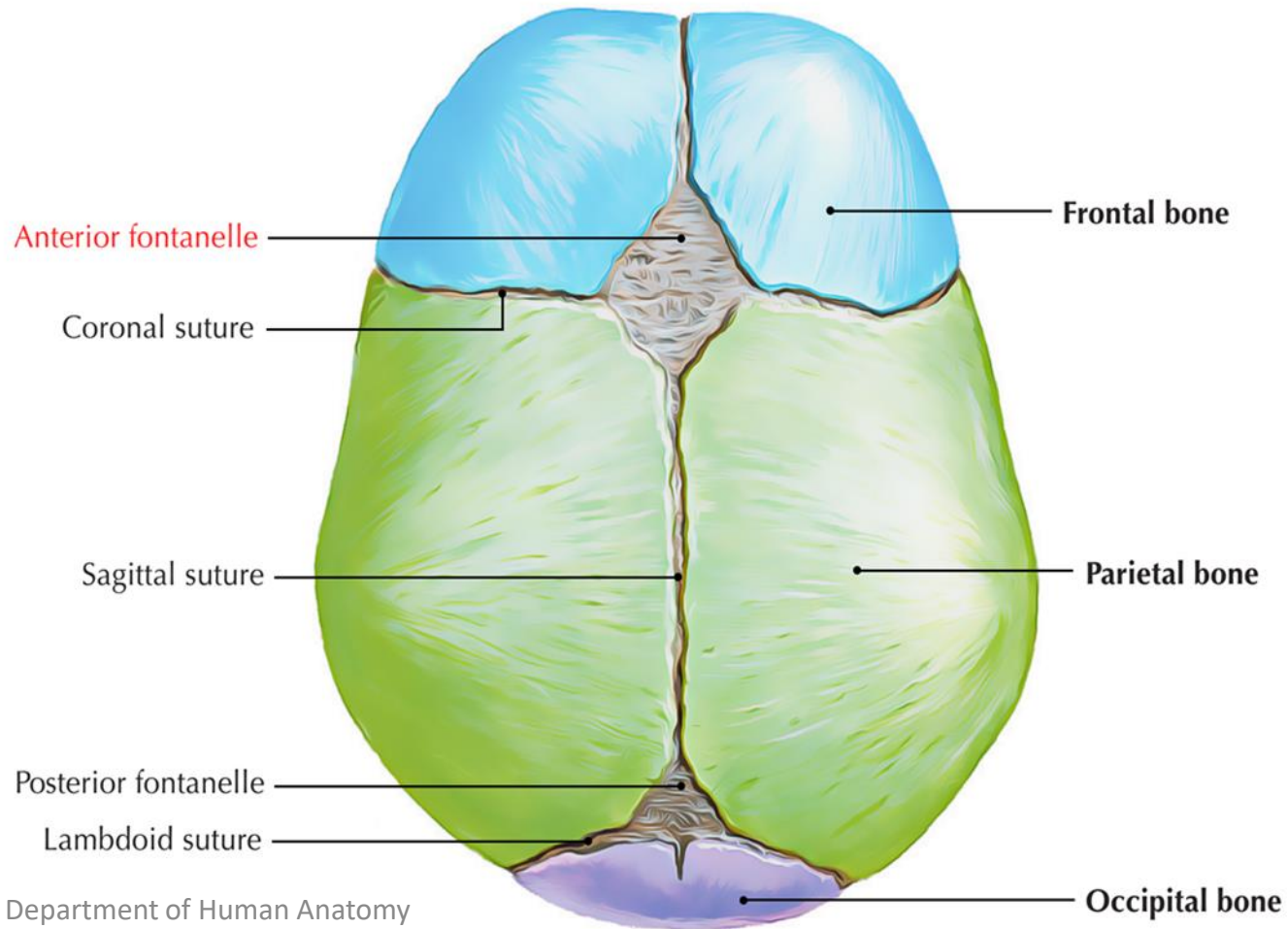




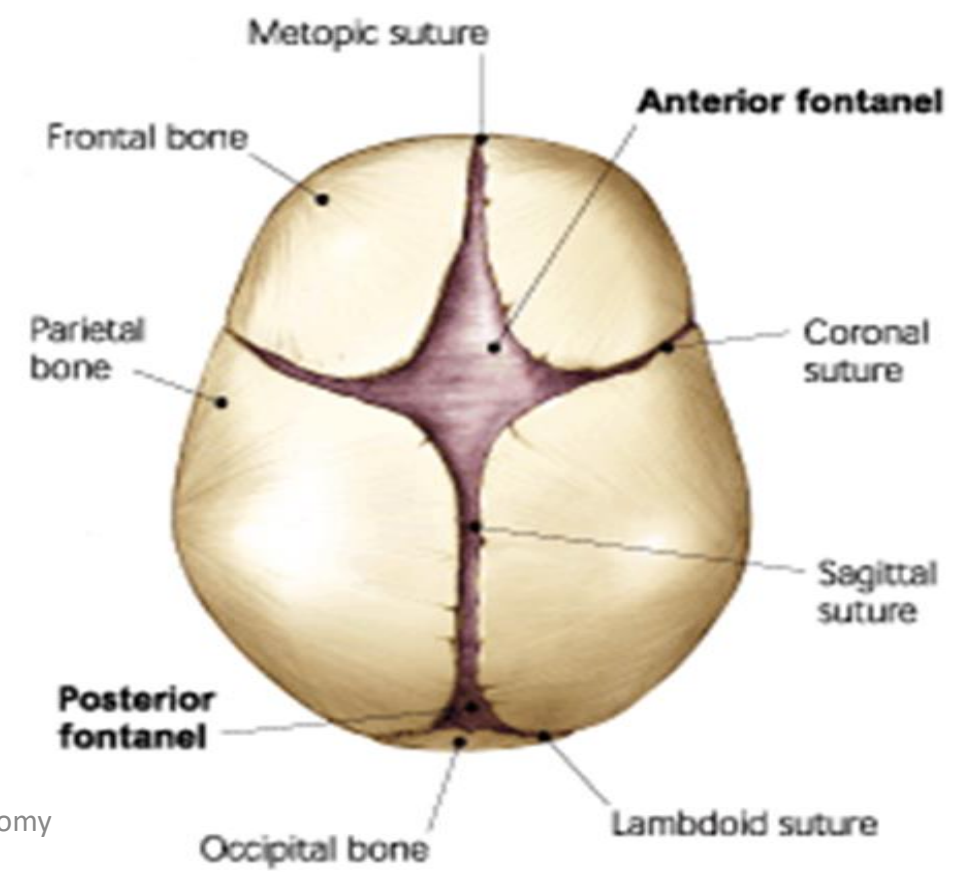
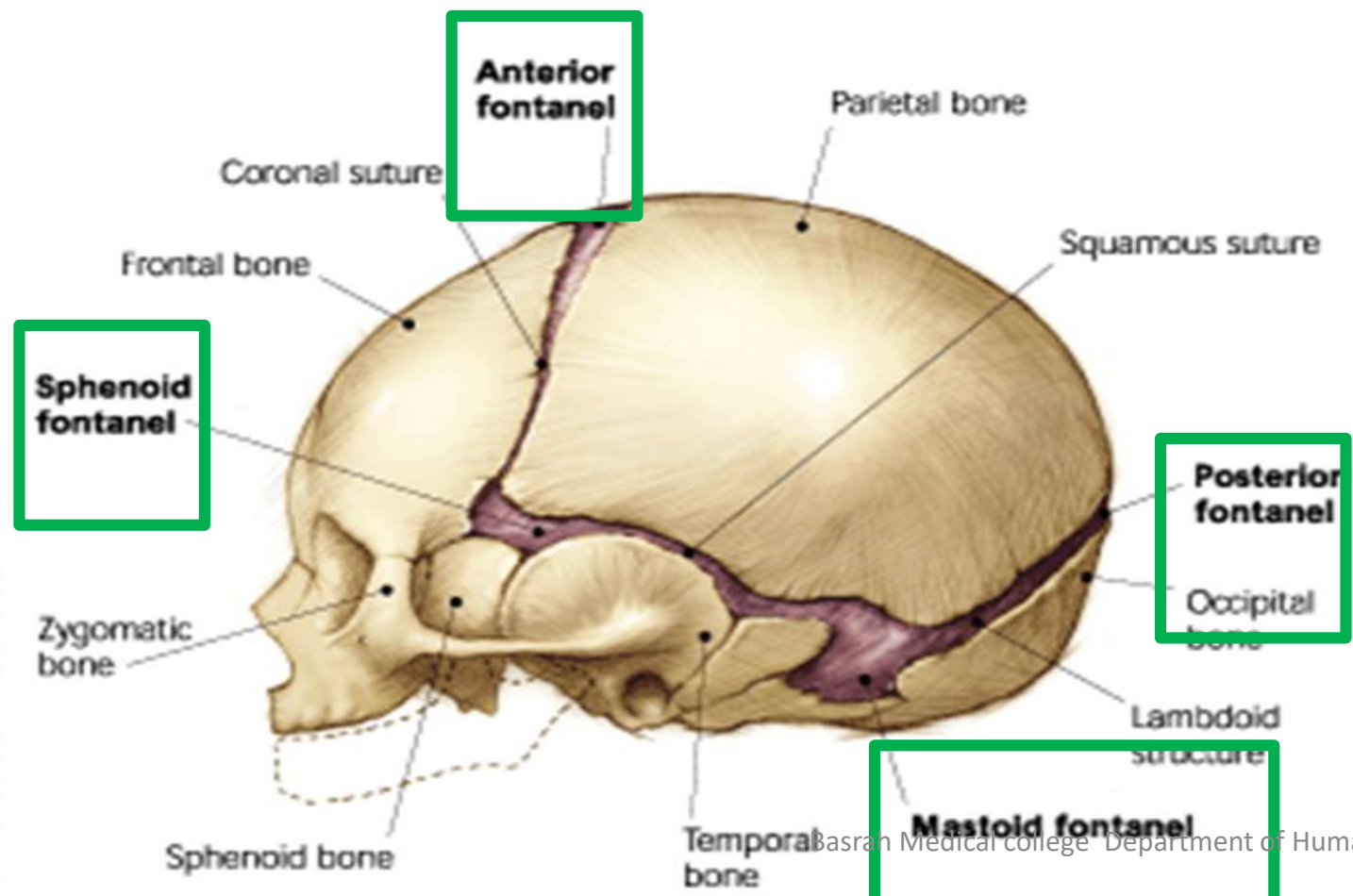
# Fontanelle

Fontanelles, often referred to as "soft spots," are one of the most important anatomical features of the newborn's skull.

Six fontanelles are present during infancy, with the most notable being the anterior and posterior fontanelles.



1. Anterior fontanel
2. Posterior fontanel
3. Mastoid fontanel (right and left )
4. Sphenoid fontanel (right and left)

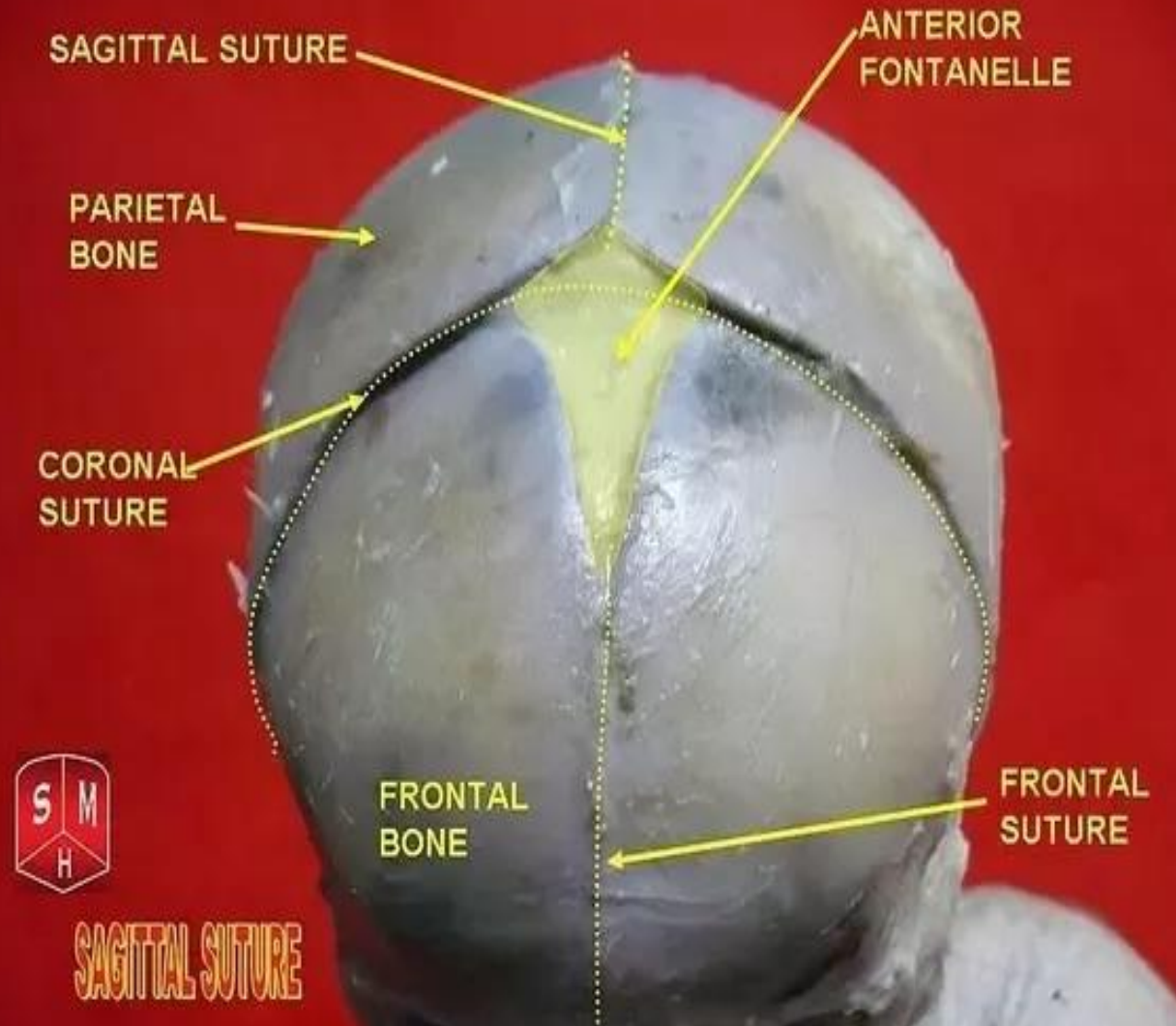
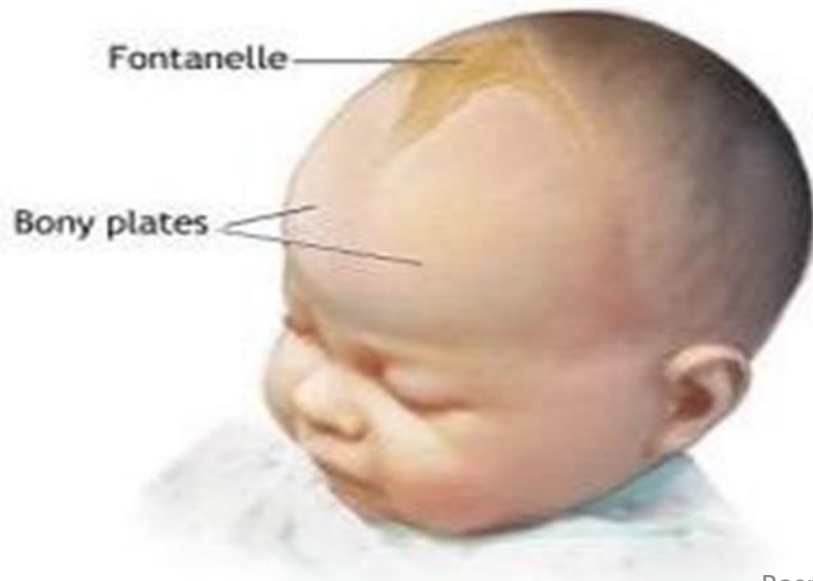


# Anterior fontanelles

**Large diamond shape**

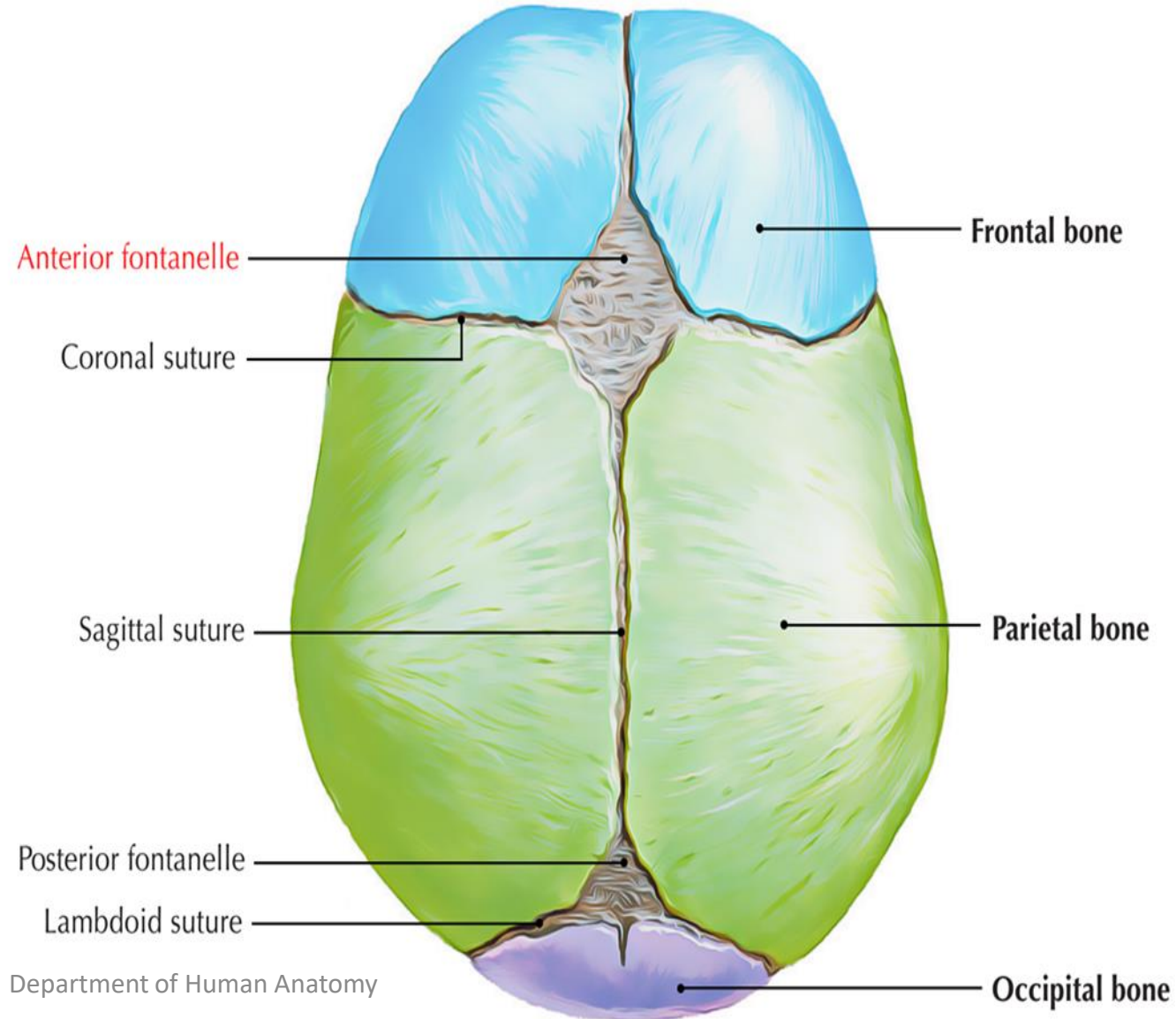
**Situated at the Bregma at junction of the sagittal coronal and frontal sutures**

**Closed at 18 months of age**



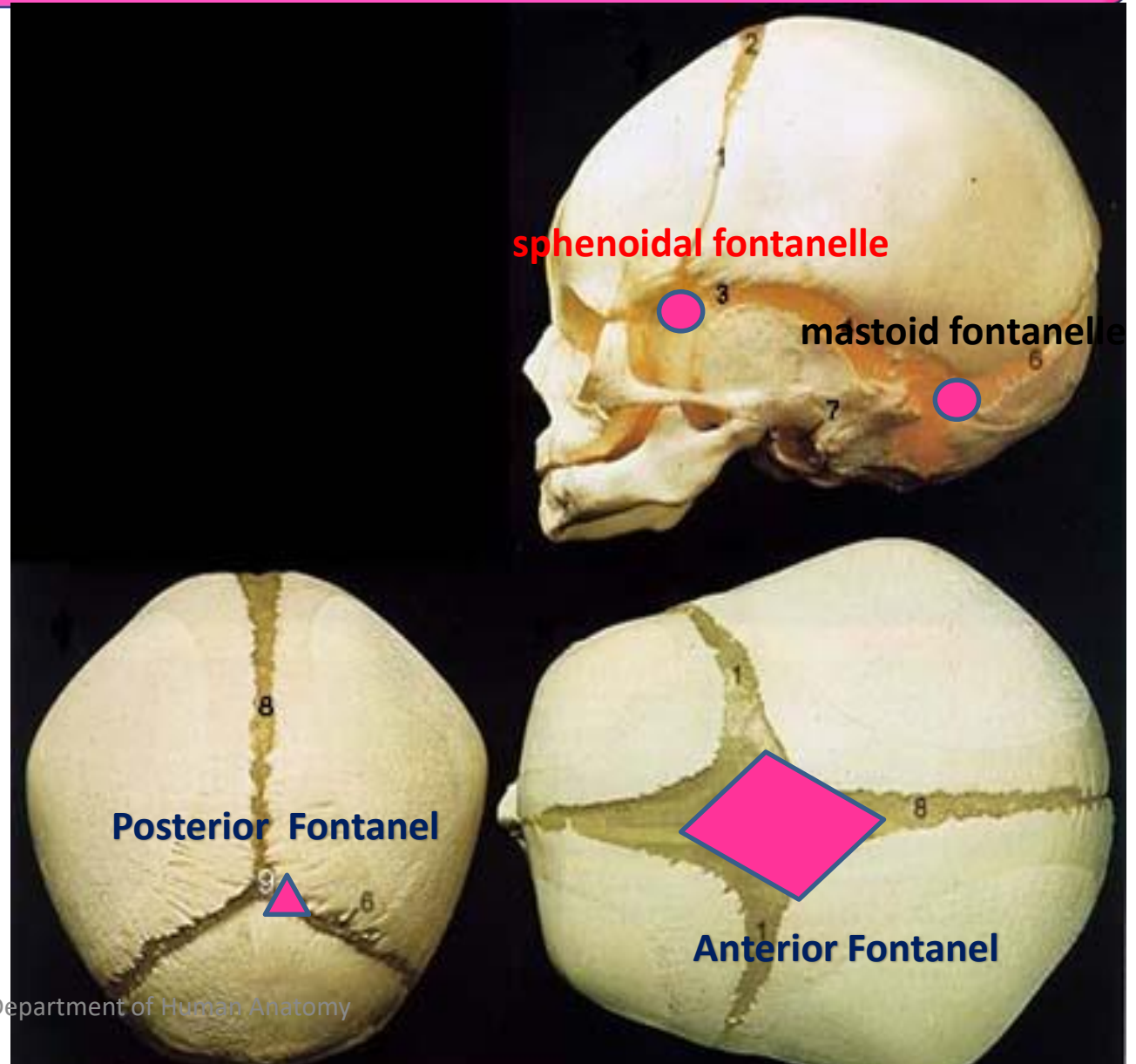
# Posterior fontanelles

**Small triangular shape**  
**Situated at the lambda at junction**  
**of the sagittal lambdoid sutures**  
**Closed at 6-12 weeks of age**



# Closure of fontanelles

1. The posterior fontanelle generally closes 2 to 3 months after birth.
2. The sphenoidal fontanelle is the next to close around 6 months after birth.
3. The mastoid fontanelle closes next from 6 to 18 months after birth
4. The anterior fontanelle is generally the last to close between 12-18 months



What are differences between anterior and posterior fontanelle ?



# Size Of Neonatal Skull

The skull at birth is large in •  
proportion to rest of the  
skeleton —  $1/4^{\text{th}}$

( in adult the proportion •  
is  $1/7^{\text{th}}$  -  $1/8^{\text{th}}$  )



# Size Of Neonatal Skull

The new born skull compared with the adult skull, has a large cranium relative to the face. The facial portion equals about  $1/8^{\text{th}}$  that of the cranium in size, whereas in adult it is ( $1/3^{\text{rd}}$ ).

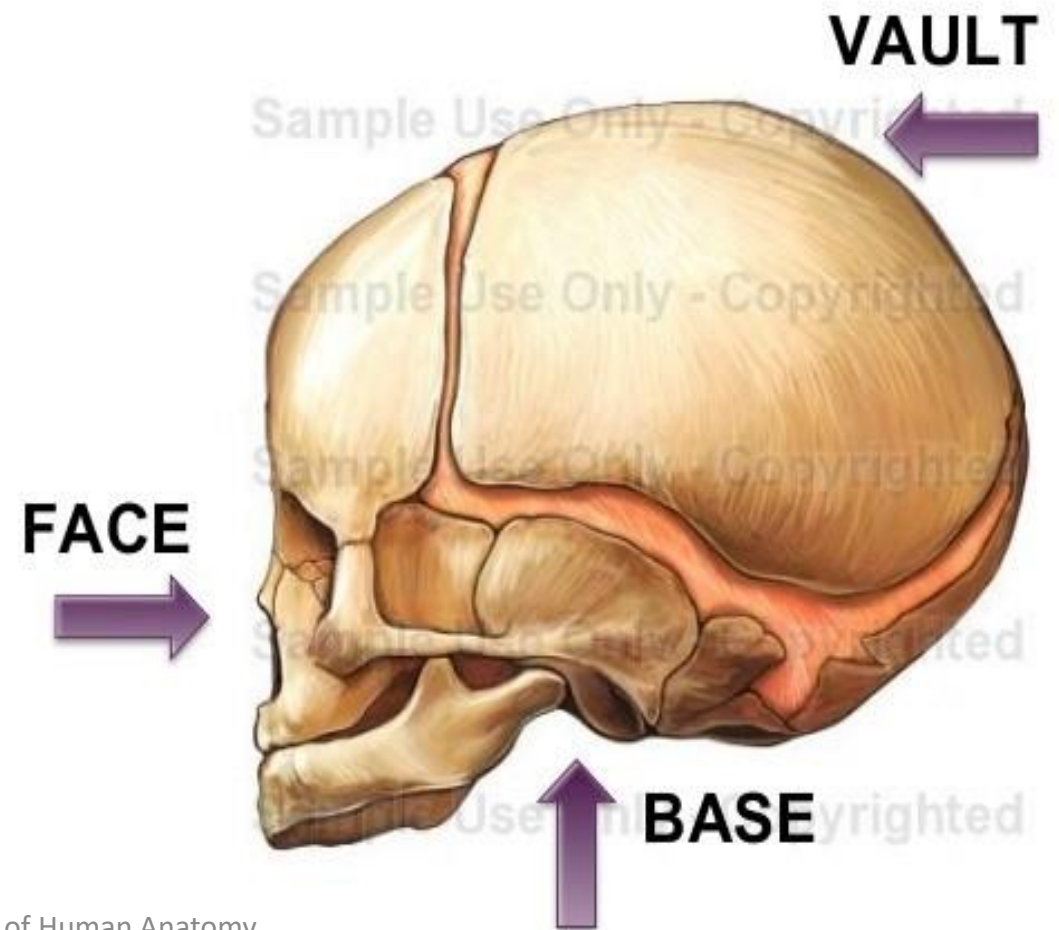




# Size of cranium:

In childhood, the growth of the mandible, the maxillary sinuses, and the alveolar processes of the maxillae results in a great increase in length of the face.

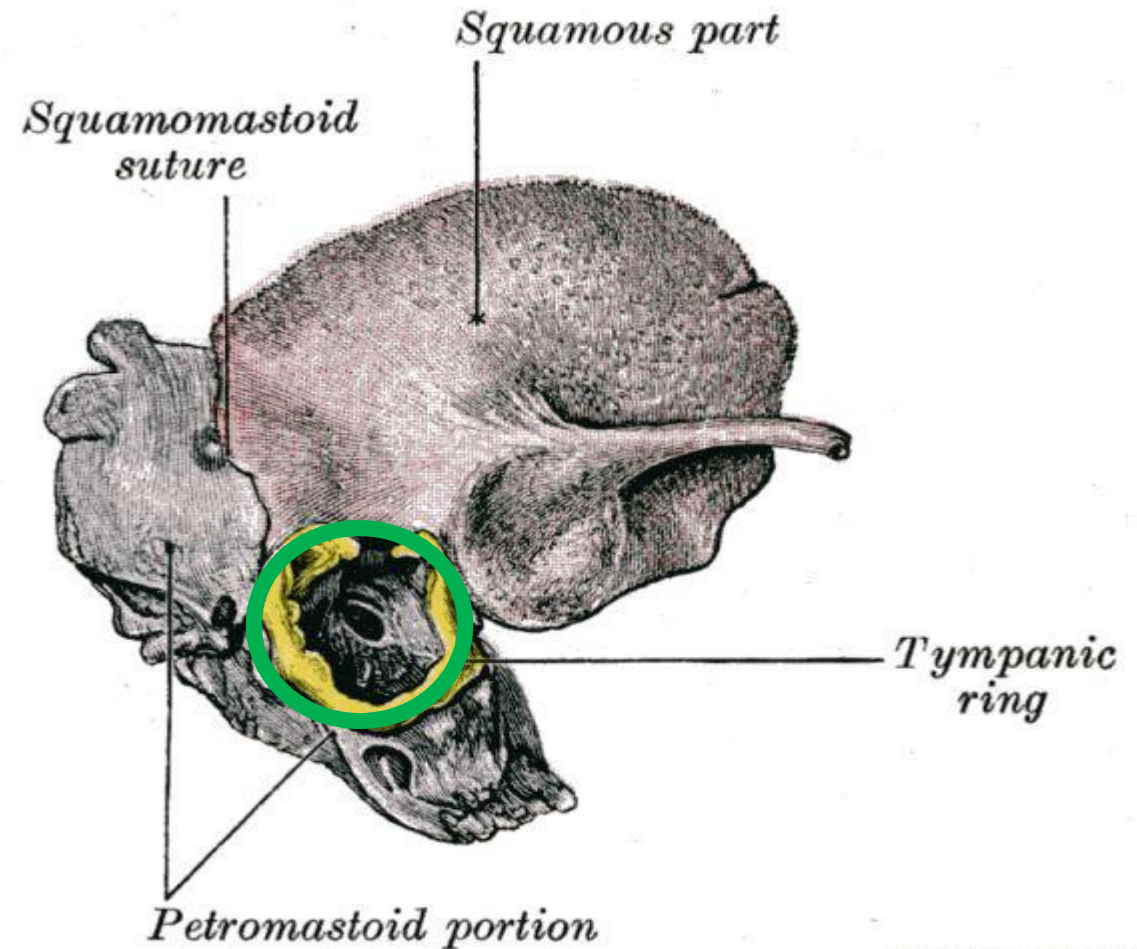
+ FETAL SKULL



# Tympanic part of temporal bone

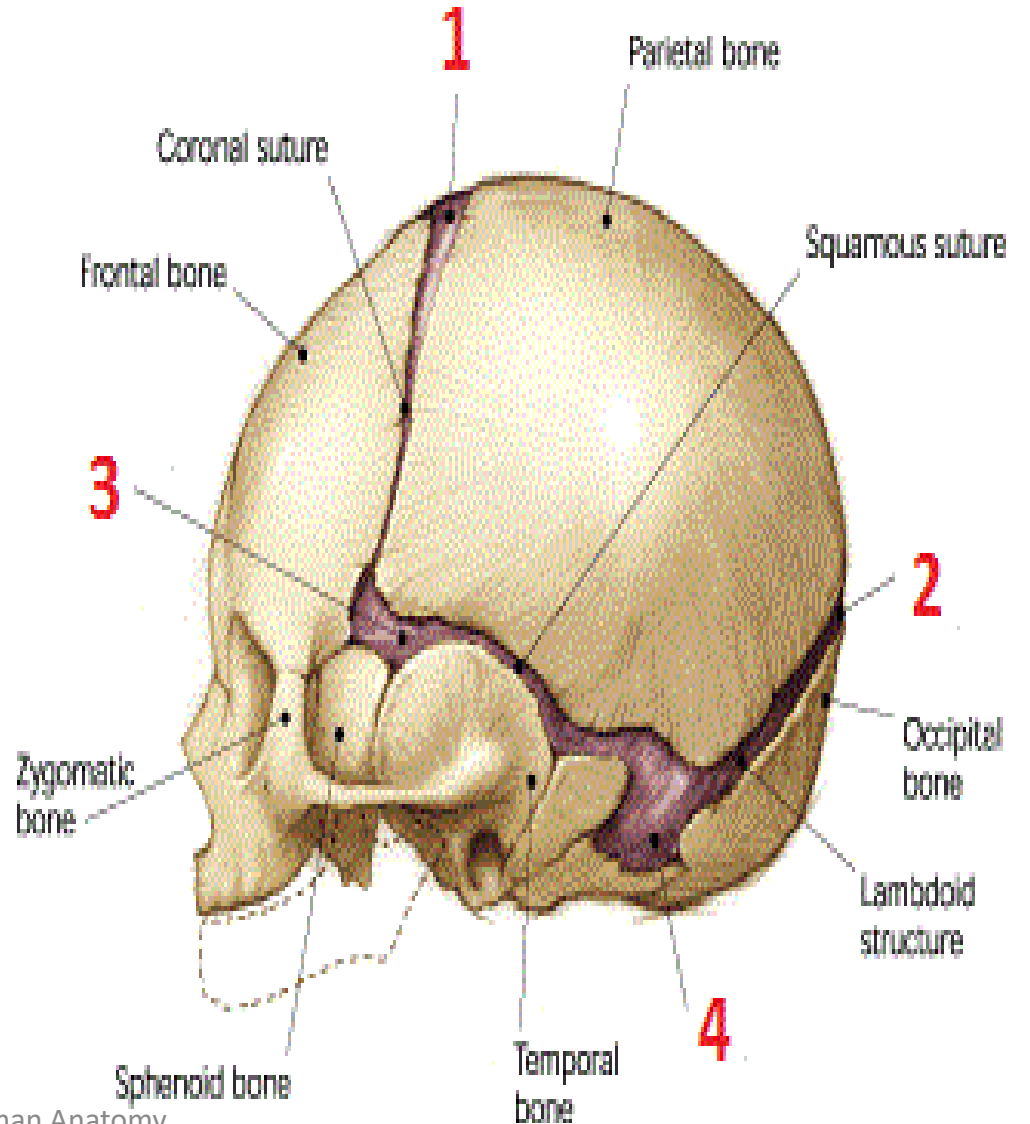
**Tympanic part is ring shaped while in an adult skull it is a C-shaped curved plate. Thus, the external auditory meatus of the neonatal skull is almost entirely cartilaginous and the tympanic membrane is nearer the surface.**

FIG. 358.—The right temporal bone at birth. External aspect.



# Mastoid process

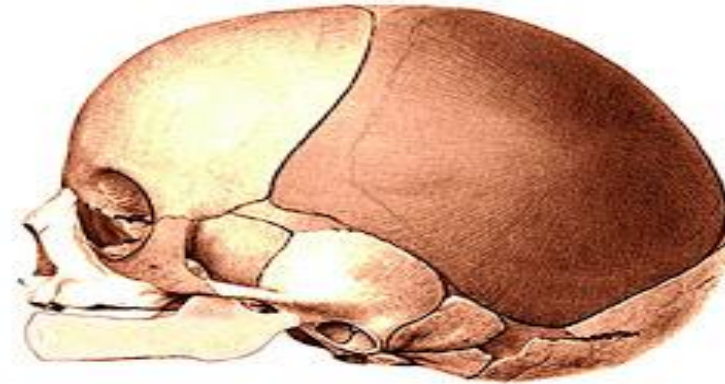
It is not present in the neonatal skull . It forms postnatally (starts to develop after 1 year old), as the sternocleidomastoid muscle develops and pulls on the bone.



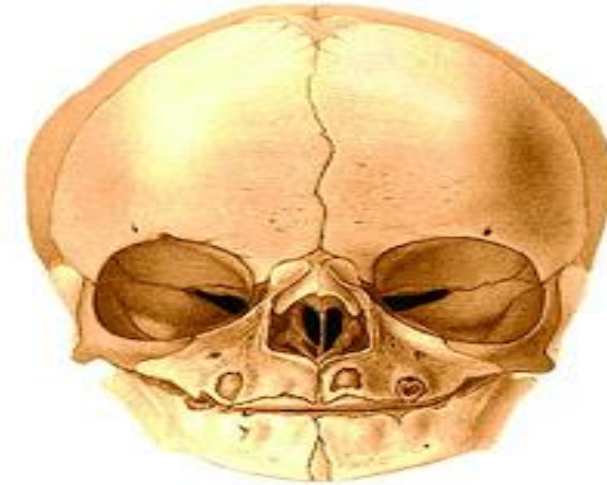
# The Mandible

✍ In the neonatal skull, the mandible has right and left halves, united in the midline by fibrous tissue. The two halves fuse at symphysis menti by the end of first year.

✍ In addition, the angle of mandible in neonatal skull is obtuse. It is only after the eruption of the permanent teeth that the angle of the mandible assumes the adult shape



A



B



C



D

