أهلا وسهلا

الأستاذ الدكتور يوسف حسين

كلية الطب - جامعة مؤتة – الأردن

دكتوراة من جامعة كولونيا المانيا

Intended Learning Outcomes (ILOs)

- **Development and congenital anomalies of the Skull**
- **Development and congenital anomalies of the Limbs**

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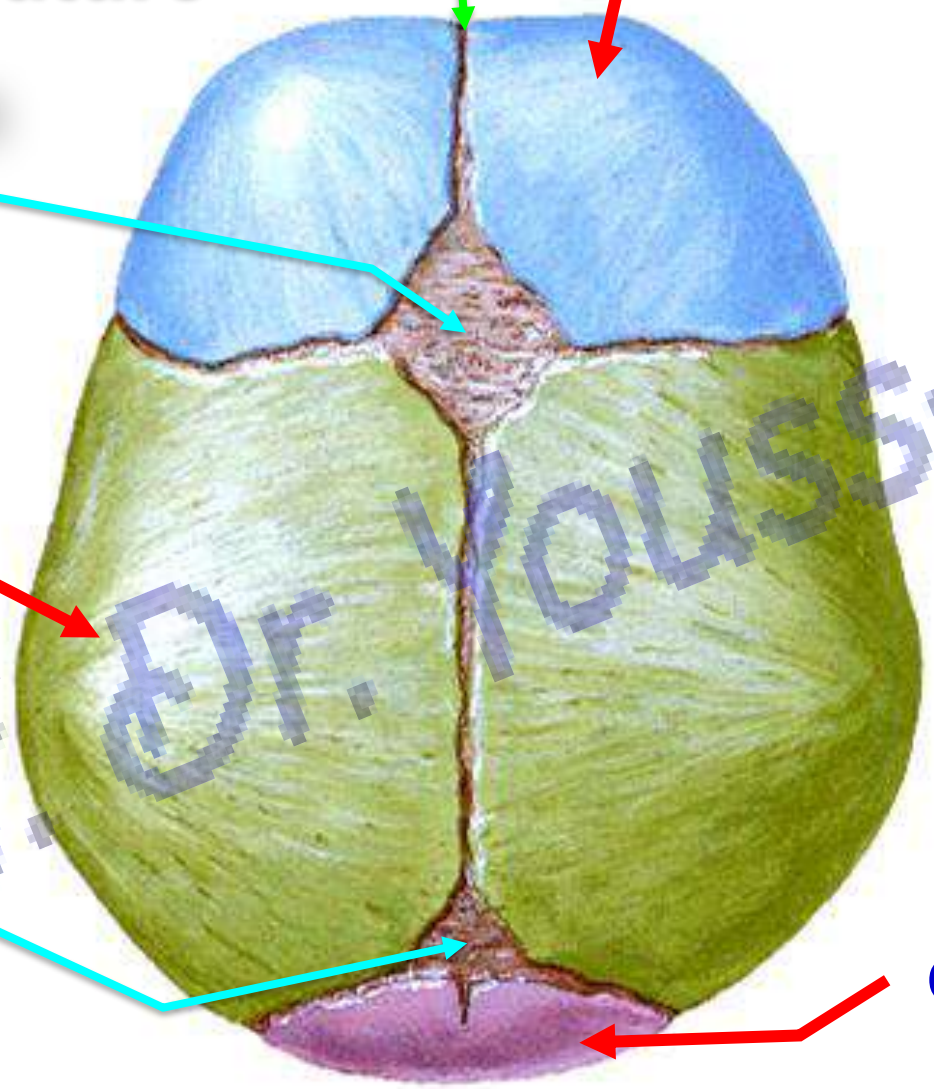
Development of skull



- **Vault of skull (Flat bones)**
- **(Neurocranium)**

- It develops from the **mesoderm** around the developing brain.
- These bones included the frontal, parietal, and occipital
- These bones ossified in membranes.

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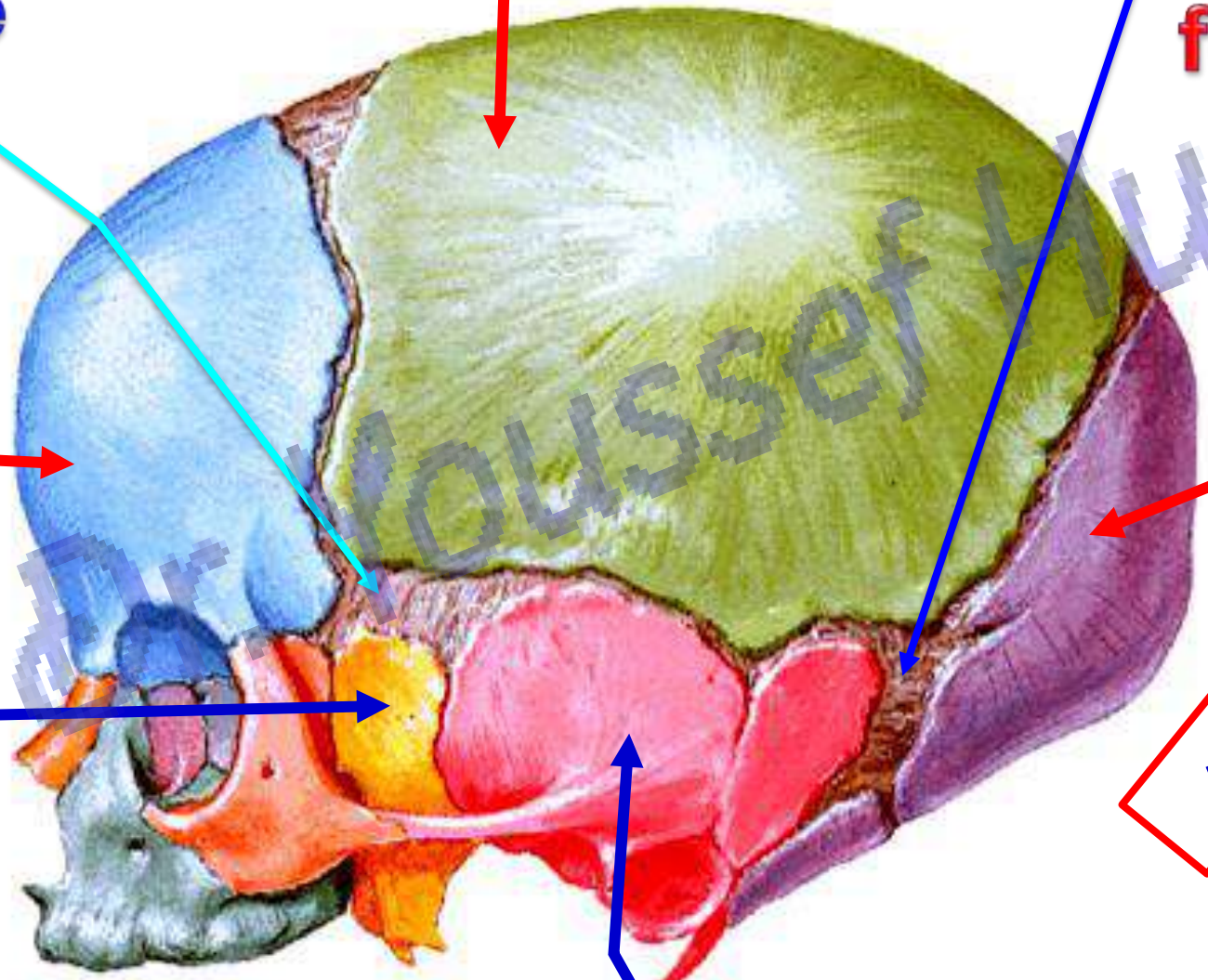

Parietal bone

Mastoid fontanelle (Asterion)

Sphenoidale fontanelle (pterion)

Frontal bone

Occipital bone

Greater wing of sphenoid bone

Temporal bone

Skull of new born

** The newborn skull

- The bones of the newborn skulls are separated from each other by sutures.
- At The meeting of more than 2 bones there is membranous parts called the **fontanelle.** They include:

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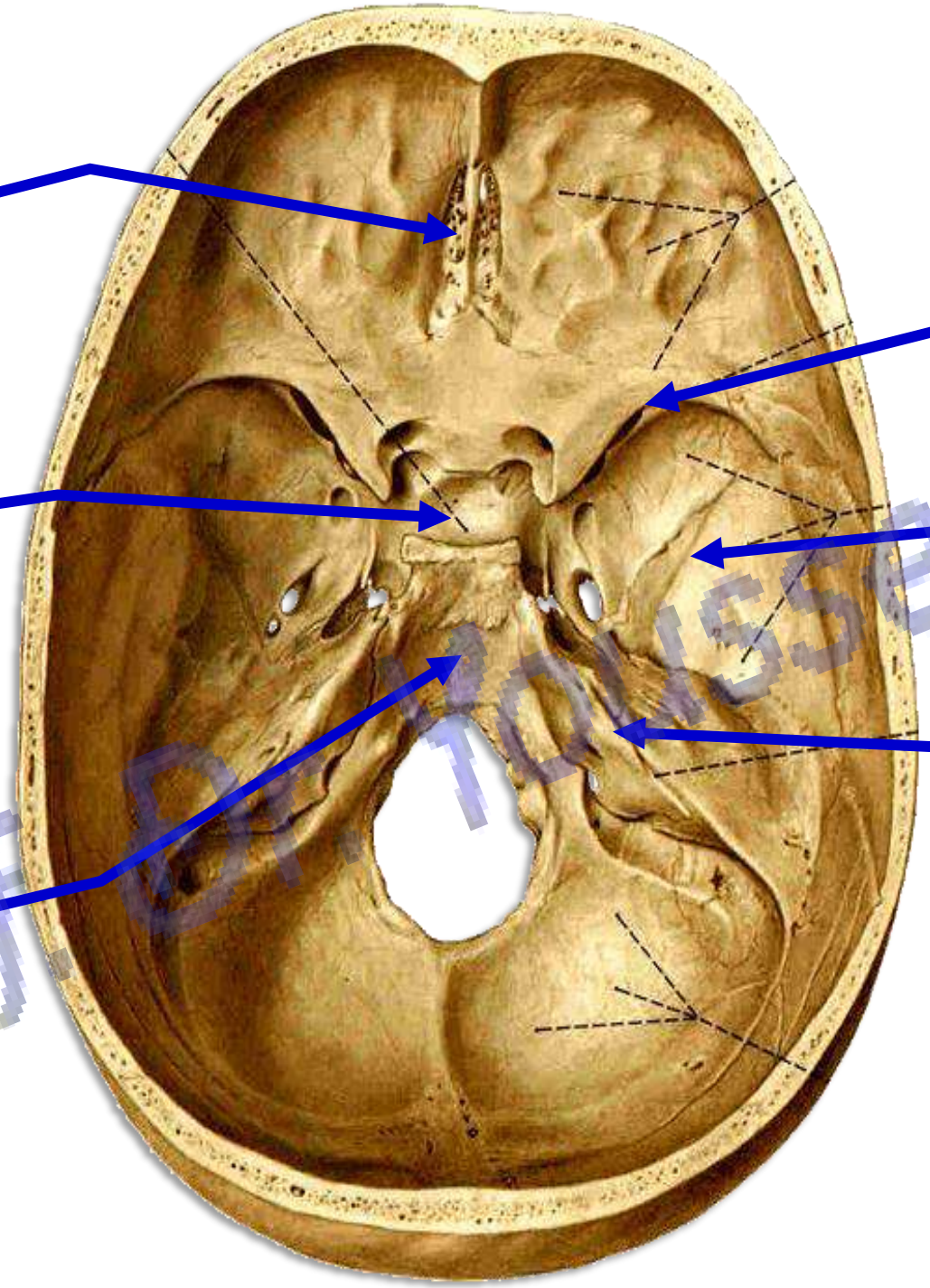
1- Anterior fontanelle: between the frontal and 2 parietal bones. It is closed about 18 months (**Bregma at adult**).

2- Posterior fontanelle: between the occipital and 2 parietal bones. It is closed about 6 months (**Lambda at adult**).

3- Sphenoid fontanelle: between the frontal, sphenoid, temporal and parietal bones. It is closed about 3 months (**pterion at adult**).

4- Mastoid fontanelle: between the occipital, parietal and mastoid part of temporal bones. It is closed about 3 months (**asterion at adult**).

Norma basalis interna



Cribriform plate of ethmoid bone

Lesser wing of sphenoid

Body of sphenoid

Greater wing of sphenoid

Petrous part of temporal cone

Basilar part of occipital bone

Base of skull

3 Median mesodermal masses

Trabecula cranii cartilage: form the cribriform plate of ethmoid bone

Hypophyseal cartilage: form the body of sphenoid

Pituitary gland

Parachordal (Basal) cartilage: It forms the basilar part of occipital bone

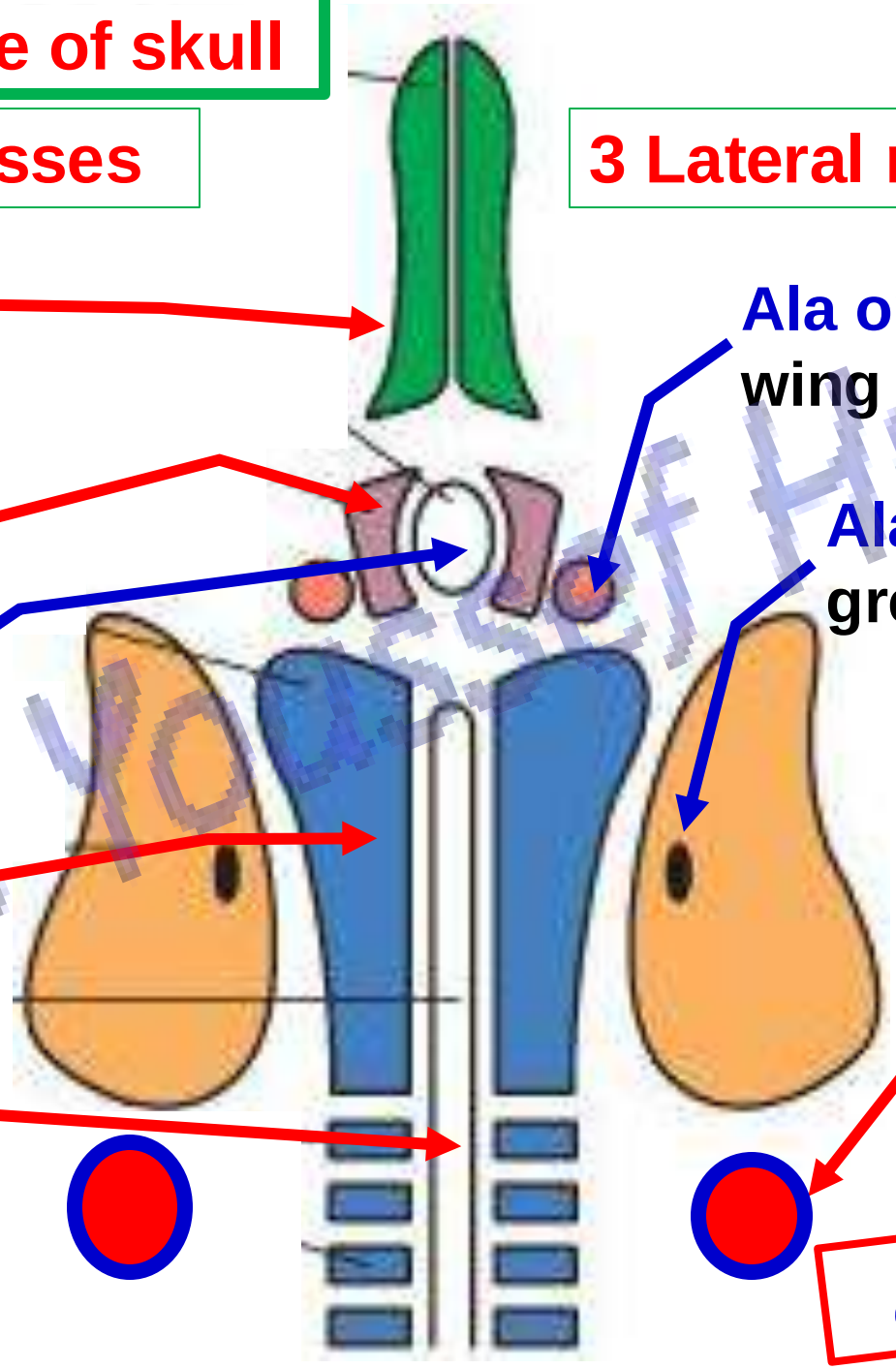
Notochord

3 Lateral mesodermal masses

Ala orbitalis: forms lesser wing of sphenoid bone

Ala temporalis: forms greater wing of sphenoid

Periotic capsules: form petrous and mastoid parts of the temporal bone



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Congenital anomalies of skull

- **Microcephaly** small skull and cerebral hemisphere

- **Hydrocephalus** excessive accumulation of C.S.F in the ventricular system due to closure in the CSF circulation

- **Anencephaly**:
  failure of development of greater part of the brain and vault of the skull due to failure of cephalic part of the neural tube to close

Meningocele

herniation of a part of the meninges

- **Meningoencephalocele** herniation of a part of the brain and its covering meninges.
- **Meningohydroencephalocele**: herniation of the meninges and part of the brain and its ventricle containing CSF

Meningoencephalocele

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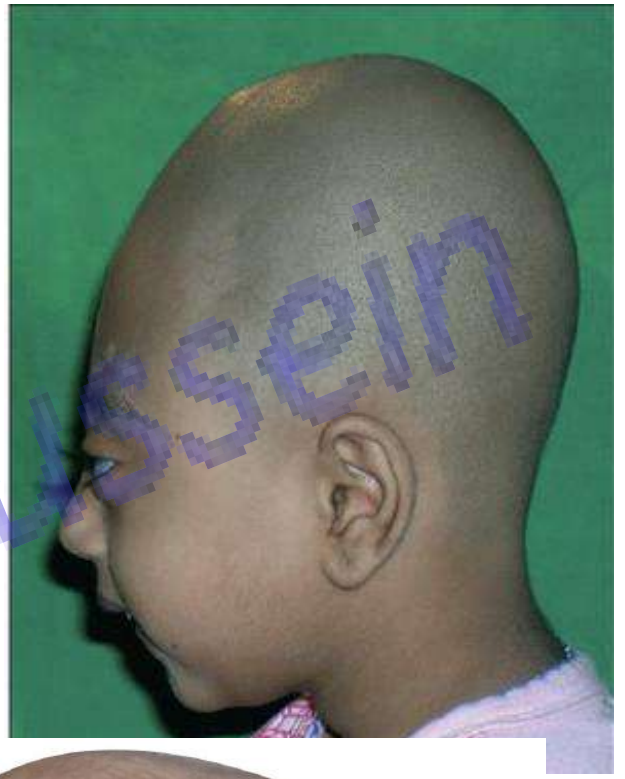
Scaphocephaly: the skull is elongated anteroposterior due to early closure of the sagittal suture

Acrocephaly: high skull due to early closure of the coronal suture



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Plagiocephaly: Asymmetrical shape due to early closure of the coronal and lambdoid sutures

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Development of limbs

• DEVELOPMENT OF THE LIMBS

* They develops as 4 buds (2 cranial and 2 caudal) at 4th week.
* Each limb bud is formed of a **mass of mesoderm**, its **central** part changes into **cartilage** then into **bone** while the **surrounding mesoderm** forms the **muscles**.
* The **upper limb** divides into arm, forearm and hand with 5 fingers.
* The **lower limb** divides into thigh, leg and foot with 5 toes.
* Each limb bud forms **right angle (90 degree) with the trunk** and has a **preaxial** border cranially (**radius, and thumb for the upper limb** and **tibia and big toe for the lower limb**) and a **postaxial** border caudally.

** Rotation of the limbs

- **Upper limb** rotates **laterally** so that the preaxial border (radius and thumb) becomes lateral and the flexor surface becomes anterior.
* **Lower limb** rotates **medially** so that the preaxial border (tibia and big toe) becomes medial and the flexor surface becomes posterior.

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Congenital anomalies of limbs

Meromelia (Phocomelia): The limbs represented only by foot or hand attached to the trunk

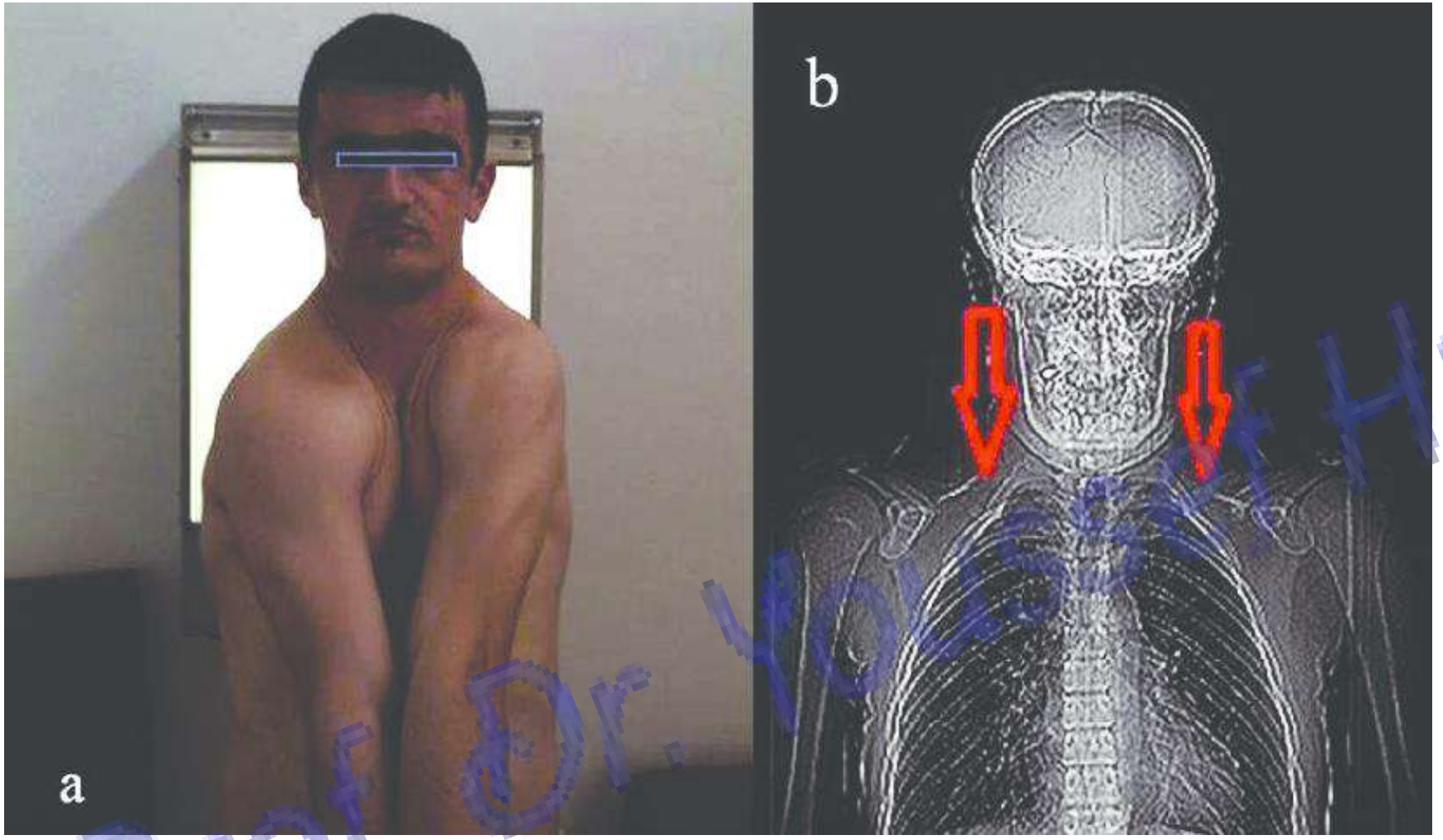
Amelia: Absence of one or more limbs

Micromelia: short segments of the limb

Lobster hand: A central fissure or cleft divides the hand or foot into 2 parts

Polydactyl: Extra number of the fingers or toes.

Syndactyl: Abnormal fusion of the fingers.



Congenital absence of some bones as clavicle

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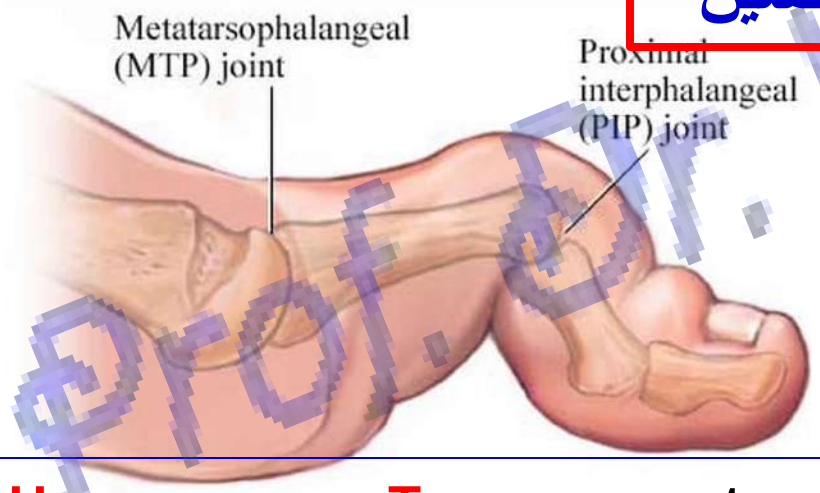
Congenital anomalies of foots

- **Flat Foot:** loss of the arch of the foot

- **Pes Cavus:** Arch of the foot is high



- **Hammer Toe:** extension of metatarsophalangeal joint and flexion of proximal interphalangeal joint.

- **Hallux Valgus:** lateral deviation of the big toe at the metatarsophalangeal joint.

- **Talipes Equinus,** permanent plantar flexion, walking is done on toes without touching the heel to ground

- **Talipes Calcaneus,** permanent dorsiflexion, the heel rests on the ground and the toes pointed upwards

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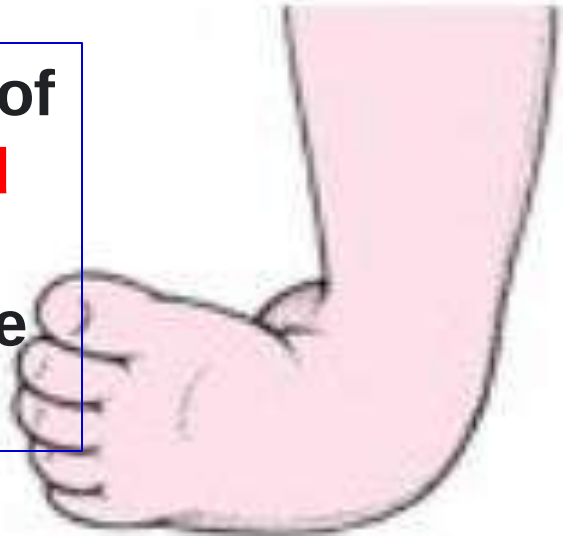
Talipes valgus: the sole of the foot inclined **outward** so that walking is done on the **medial** side of the foot

Talipes varus: the sole of the foot inclined **inward** so that walking is done on the **lateral** side of the foot



Intended Learning Outcomes (ILOs)

- Development and congenital anomalies of the Diaphragm
- Development and congenital anomalies of the Nose
- Development and congenital anomalies of the Trachea and Lungs

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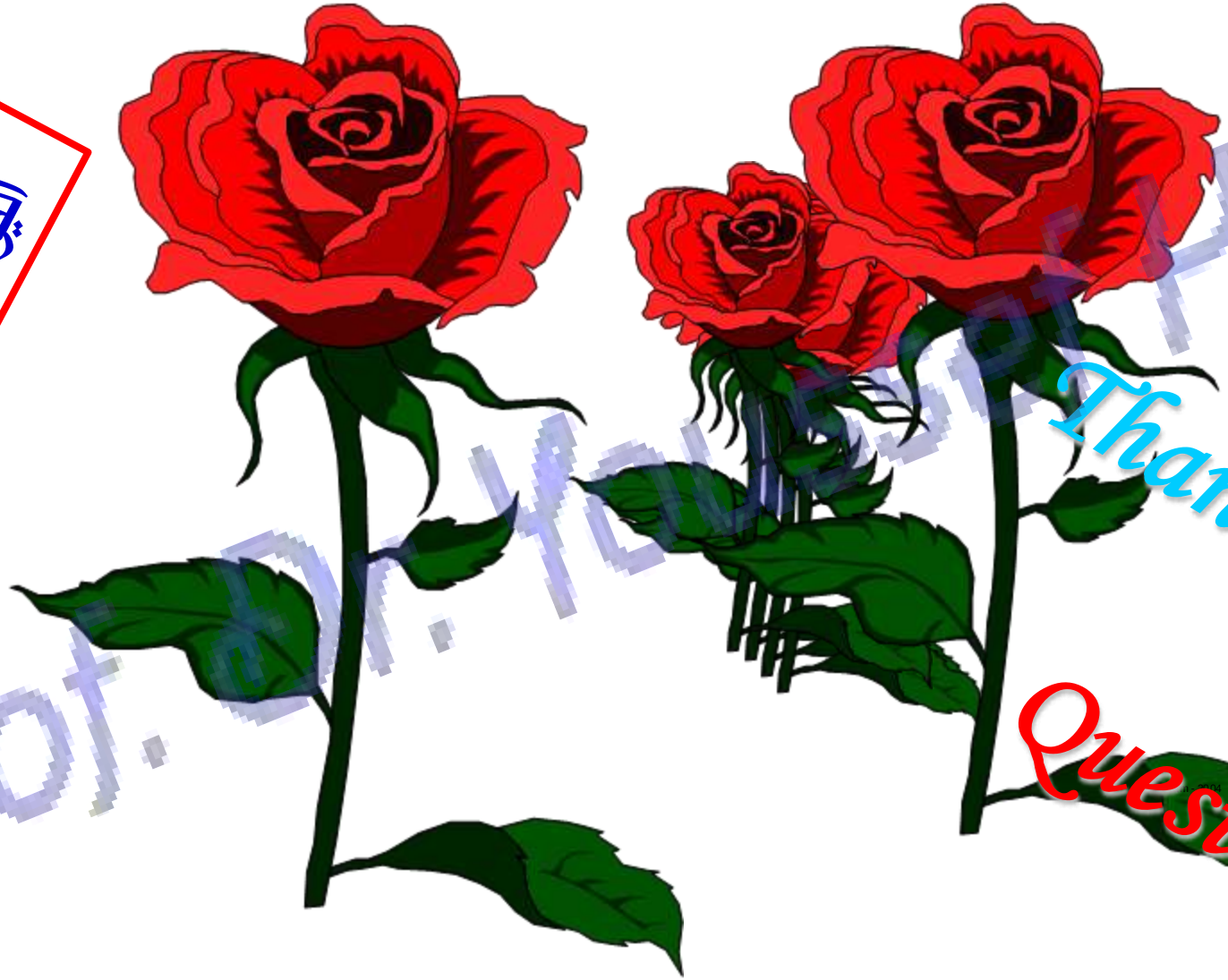

Thank you

Questions

https://www.youtube.com/@ProfDrYoussefHusseinAnatomy/playlists