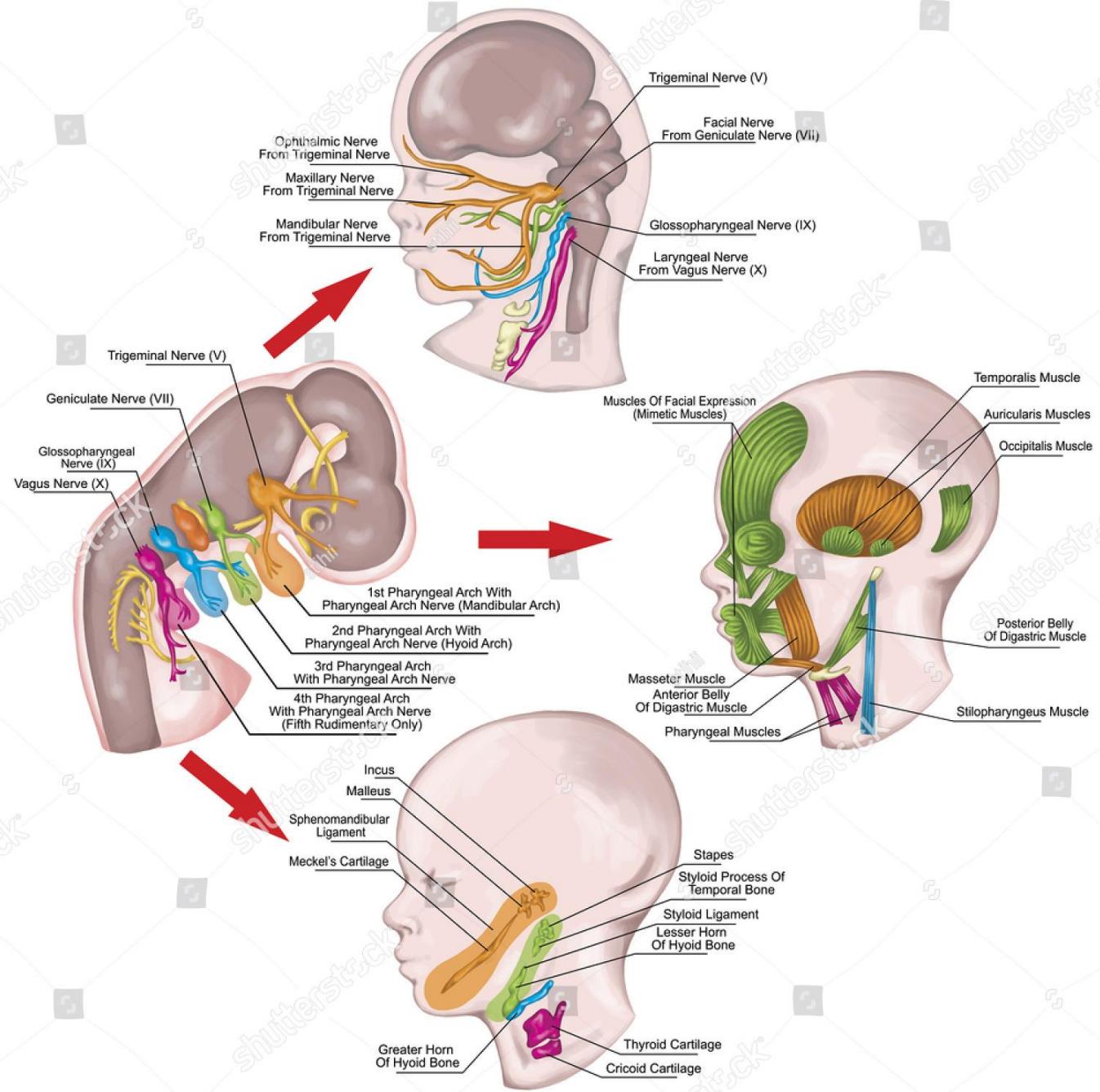


# Pharyngeal Apparatus Derivatives

**Create a Table:**

Know this table for the exam.

Arch Number	Bone & Cartilage	Muscles	Arteries	Cranial Nerve	Pouch, Cleft, Membrane Derivatives
1 ("mandibular")			X		
2 ("hyoid")			X		
3 ("carotid")			X		
4 ("systemic")					
6 ("pulmonary")					



# Nerves

Arch 1: trigeminal (CN V)

Arch 2: facial (CN VII)

Arch 3: glossopharyngeal (CN IX)

Arch 4 & 6: vagus (CN X)

# Muscles

Arch 1: mm. of mastication, etc.

Arch 2: mm. of facial expression, etc.

Arch 3: stylopharyngeus m.

Arch 4 & 6: mm. of larynx, esophagus

# Cartilage & Bone

Arch 1: mandible, malleus, incus

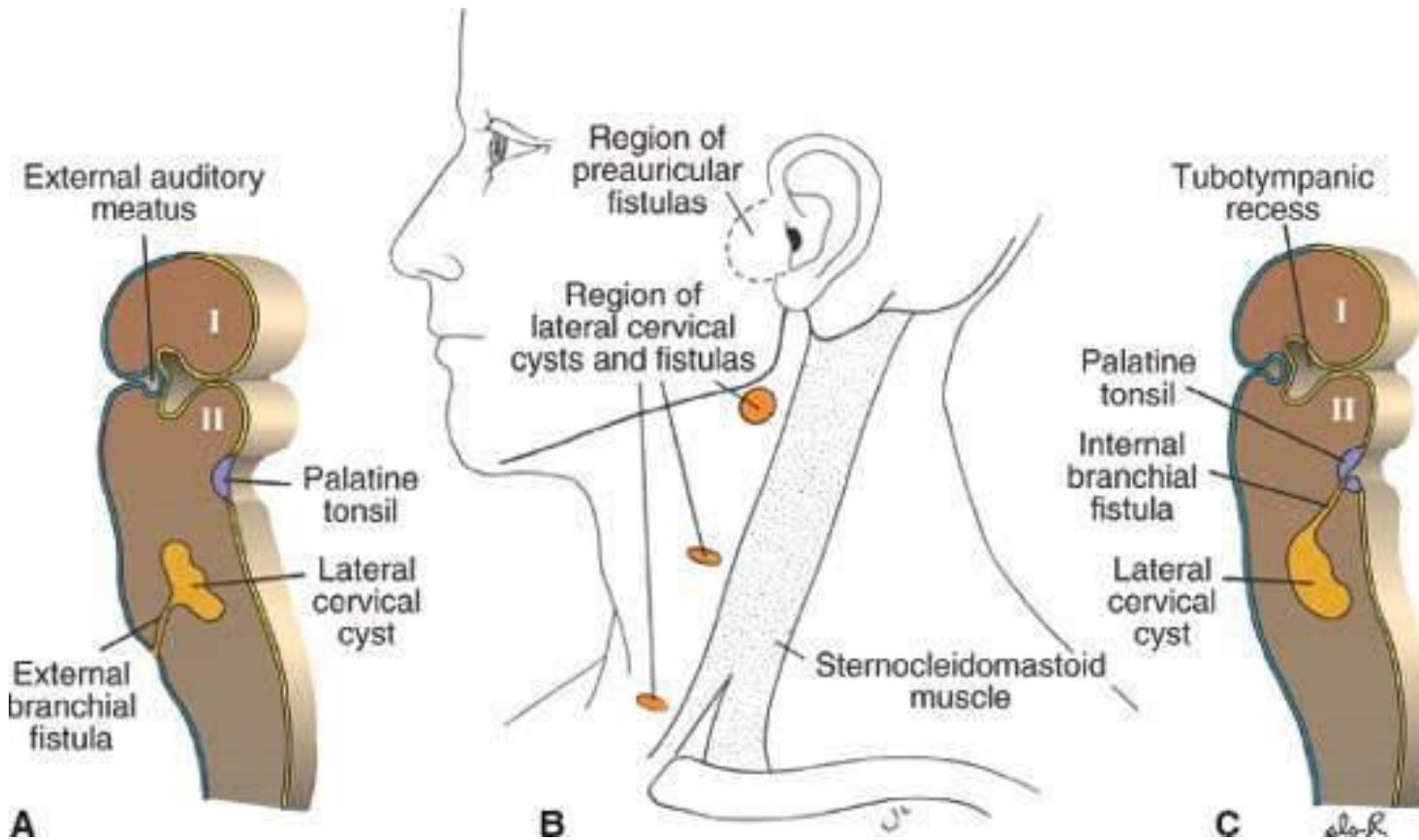
Arch 2: hyoid (upper), stapes, styloid pr.

Arch 3: hyoid (lower)

Arch 4 & 6: laryngeal cartilages

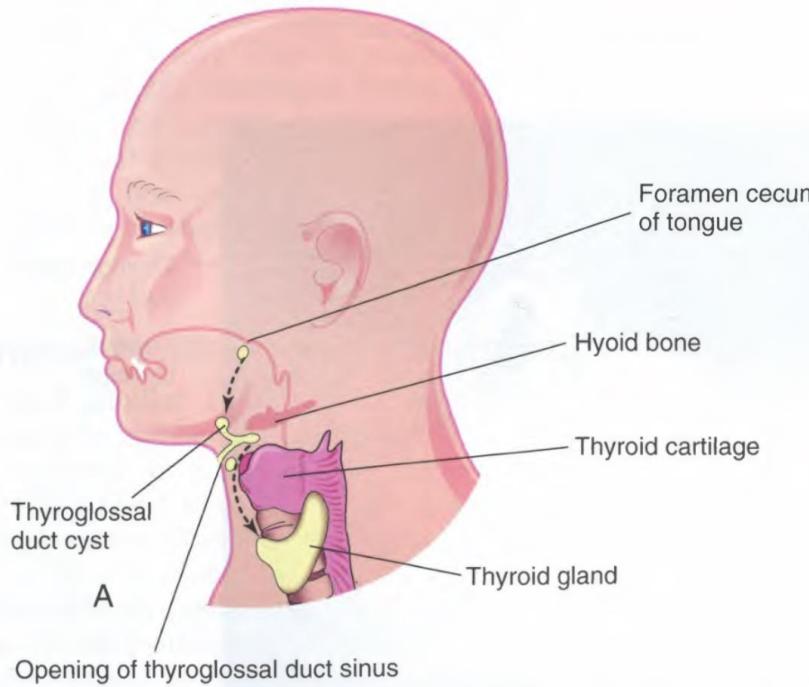
# ⌘ Clinical Correlates ⌘ Branchial Fistula & Cyst

- Caused by persistent cervical sinus derived from fusion of Pharyngeal Clefts 2–4.
- Typically, internal fistula opens at the palatine tonsil formed from Pouch 2 and external fistula opens on the skin of the neck anterior to the sternocleidomastoid m.

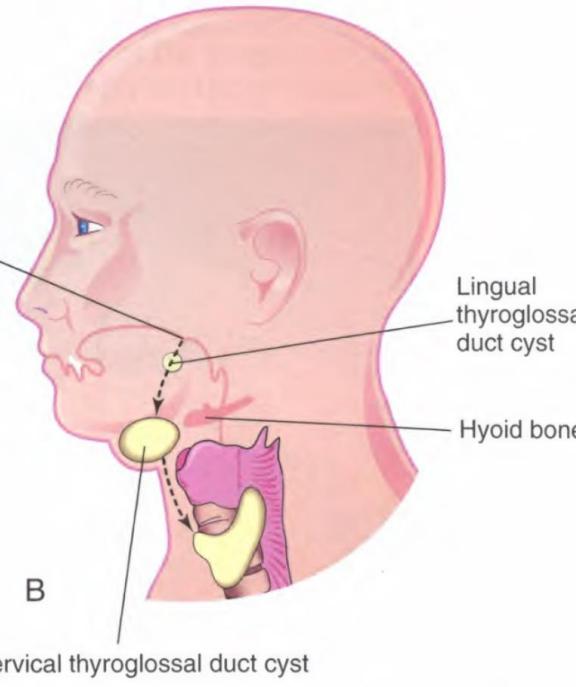


# \$ Clinical Correlate \$ Thyroglossal Duct Cyst, Sinus; Pyramidal Lobe

## Thyroglossal Duct Sinus



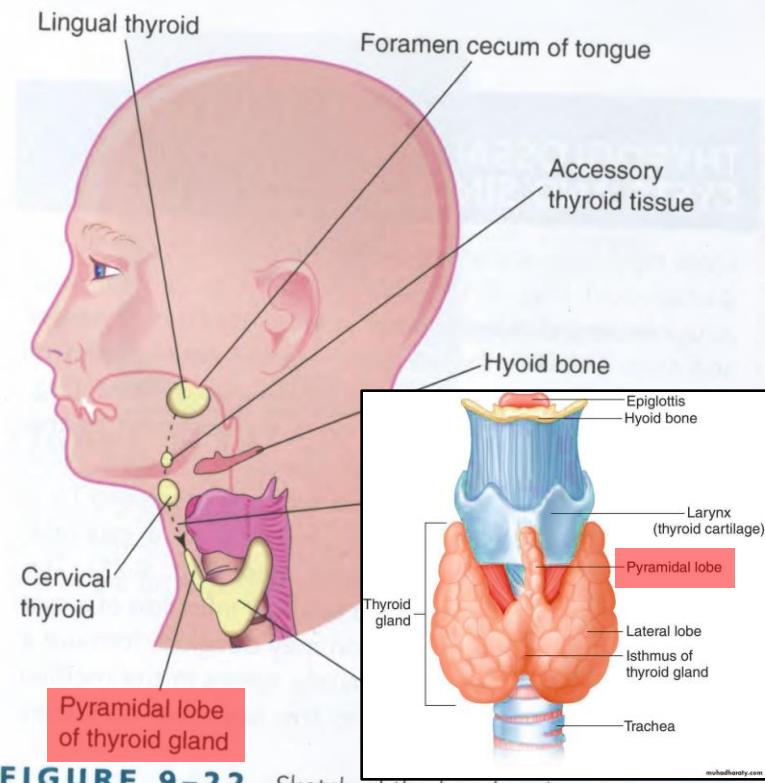
## Thyroglossal Duct Cyst



**FIGURE 9-19** A, Sketch of the head and neck showing the possible locations of thyroglossal duct cysts. A thyroglossal duct sinus is also illustrated. The *broken line* indicates the course taken by the thyroglossal duct during descent of the developing thyroid gland from the foramen cecum to its final position in the anterior part of the neck. B, Similar sketch illustrating lingual and cervical thyroglossal duct cysts. Most thyroglossal duct cysts are located just inferior to the hyoid bone.

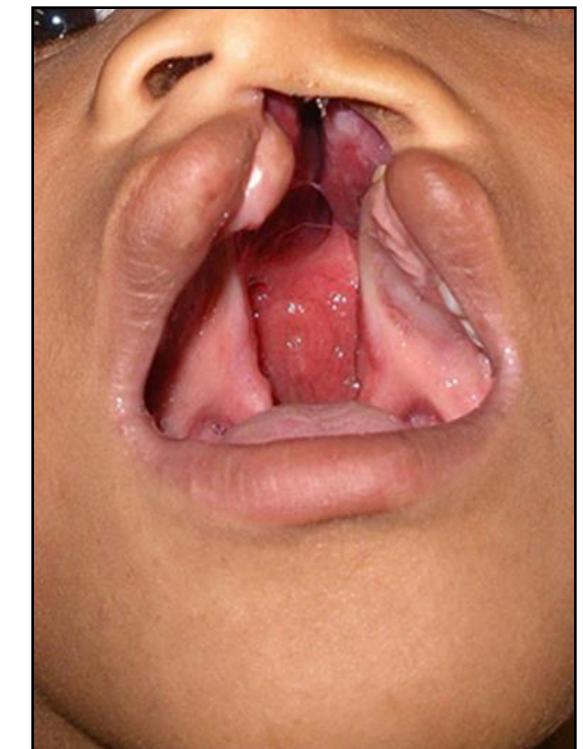
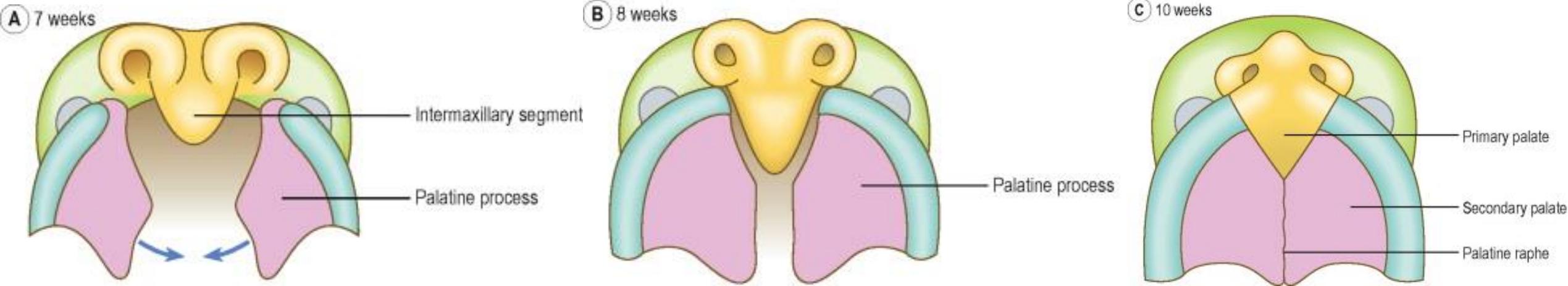
- Thyroglossal duct cyst forms in the midline (not lateral) of the neck from incomplete closure of the thyroglossal duct. Rupture of this cyst from infection, creates a sinus.
- Ectopic thyroid gland is the existence of gland tissue along the path of the thyroglossal duct (common).

## Ectopic Thyroid Gland



**FIGURE 9-22** Sketch of the head and neck showing the usual sites of ectopic thyroid tissue. The *broken line* indicates the path followed by the thyroid gland during its descent and the former tract of the thyroglossal duct.

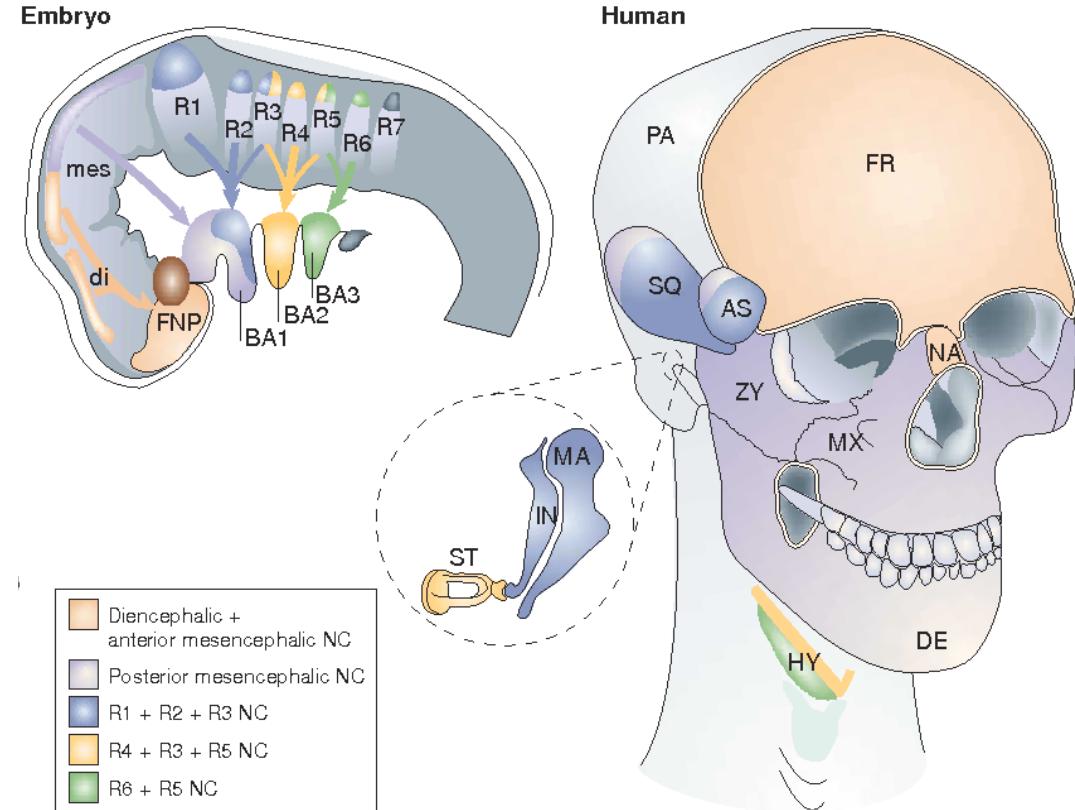
# Clinical Correlate Cleft Lip, Cleft Palate



**Cleft Lip & Palate:** caused by incomplete closure of the maxilla and/or palate. Occurs in 1 in ~1,000 births.

- Results in abnormal facial appearance, defective speech.
- Treatment involves surgery and any therapies (e.g., speech) to improve related conditions.

# Neural Crest Derivatives in Head and Neck



## Cartilage & Bone

facial bones (frontal, nasal, maxilla, zygomatic, mandible, etc.), some in the cranial base (parts of sphenoid bone), middle ear ossicles (malleus, incus, stapes), hyoid, laryngeal cartilage.

## Nervous System

sensory ganglia of CN V, VII, IX, X (branchiomeric nerves) and peripheral nerves.

## Muscles

(muscles are from primary mesenchyme, not NCC)

## Other

- teeth: dentine (not enamel)
- dermis and hypodermis of face and neck
- choroid and sclera of eye
- melanocytes in the iris (and rest of the body).
- meninges
- connective tissues of lacrimal, salivary, thymus glands