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DERIVATIVES OF BRANCHIAL APPARATUS

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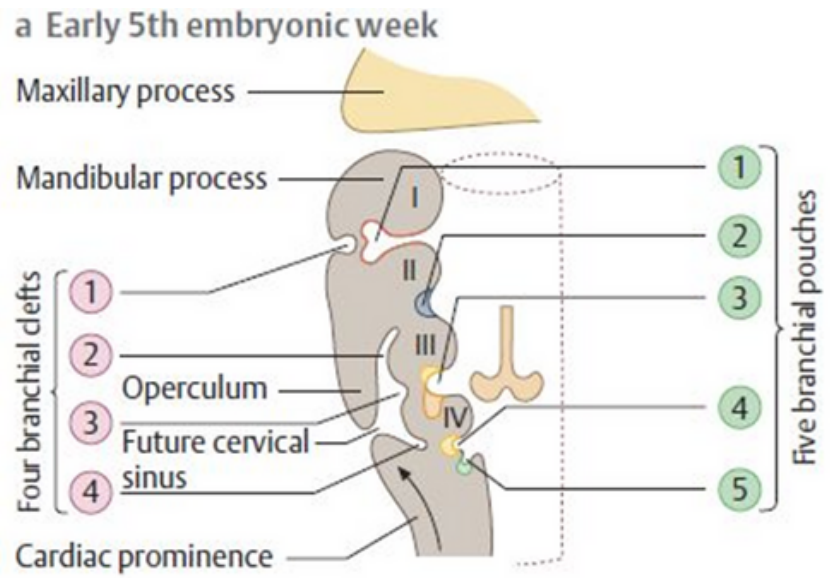
DERIVATIVES OF BRANCHIAL APPARATUS

Each branchial arch is supplied by an artery and a nerve and develops into well-defined muscles, bone, and cartilage.

The branchial apparatus undergoes this complex development and differentiation during the 3rd through 7th embryonic weeks.

DERIVATIVES OF BRANCHIAL APPARATUS



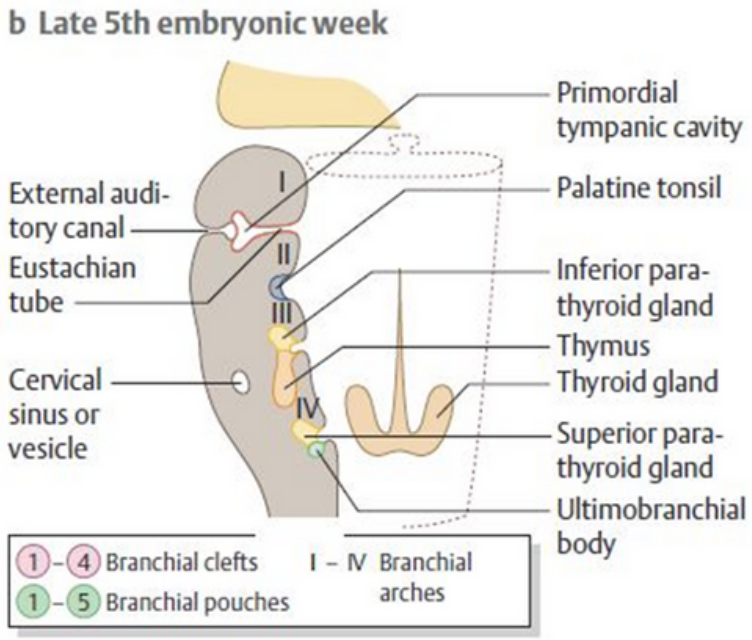
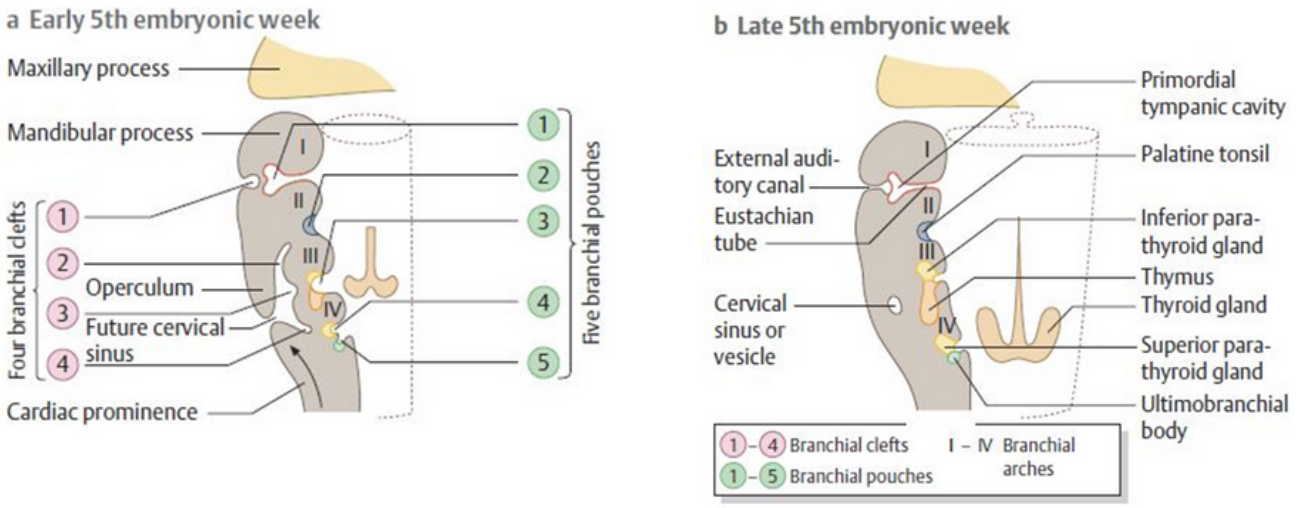


IMAGE DESCRIPTION



- *An anatomical diagram detailing the embryonic development of the head and neck, illustrating the derivatives of pharyngeal arches.*
- *Highlighted structures include muscles of mastication, facial muscles, laryngeal cartilages, and associated nerves.*
- *The maxillary artery (1st arch) and common carotid artery (3rd arch) originate from branchial arch arteries.*
- *The hypoglossal nerve (XII) innervates muscles derived from multiple arches, influencing tongue movements.*
- *Muscles of facial expression, derived from the 2nd arch, are controlled by the facial nerve (VII).*
- *Neural crest cells contribute significantly to the development of skeletal and connective tissue elements in branchial arches.*
- *Branchial apparatus derivatives are crucial in diagnosing congenital abnormalities and facial developmental disorders.*

EMBRYONIC DERIVATIVES OF MANDIBULAR (1ST) ARCH

- ***Muscles of Mastication:*** *Derived from the **1st arch**, including the powerful muscles responsible for jaw movement.*

- ***Trigeminal Nerve (V):*** *Innervates the muscles of mastication, carrying sensory information from the face.*

- ***Anterior Ligament of Malleus:*** *Connects malleus tospine of the sphenoid bone, part of the middle ear structure.*

- ***Tensor Tympani Muscle:*** *Originates from the **1st arch**, helps in middle ear function and sound modulation.*

- ***Mylohyoid Muscle:*** *Forms the floor of the oral cavity, provides support to various structures in the mouth.*

HYOID (2ND) ARCH AND FACIAL MUSCLES

- ***Facial Nerve (VII):*** *Innervates muscles derived from the* ***2nd arch****, and controls facial expressions.*

- ***Stapedius Muscle:*** *Arises from the* ***2nd arch****, it stabilizes the stapes bone in the middle ear.*

- ***Stylohyoid Muscle:*** *Linked to the styloid process, it supports the hyoid bone's structure and function.*

- ***Facial Muscles (Buccinator, Platysma):*** *Key muscles involved in facial expression and oral activities.*

- ***Palatine Tonsil Development:*** *Associated with the* ***2nd arch****, contributing to the anatomy of the tonsillar fossa.*

PHARYNGEAL MUSCLES AND LARYNGEAL DEVELOPMENT ACROSS 3RD TO 6TH ARCHES

- ***Glossopharyngeal Nerve (IX) - 3rd Arch:*** *Innervates at stylopharyngeus muscle, contributing to pharyngeal movements.*

- ***Superior Laryngeal Nerve (Vagus - X) - 4th Arch:*** *Innervates at cricothyroid muscle, influencing vocal cord tension.*

- ***Recurrent Laryngeal Nerve (Vagus - X) - 6th Arch:*** *Innervates at all intrinsic muscles of the larynx (except the cricothyroid muscle).*

- ***Parathyroid and Thymus Development - 3rd and 4th Arches:*** *Originating from these arches, respectively, they play roles in endocrine function.*

- ***Cuneiform and Corniculate Cartilages - 4th and 6th Arches:*** *Formed as part of laryngeal development, contributing to vocalization and airway protection.*

DERIVATIVES OF BRANCHIAL APPARATUS

Question:

Which nerve is responsible for innervating the muscles derived from the 2nd (hyoid) arch, controlling facial expressions?

a.) Glossopharyngeal (IX)
b.) Facial (VII)
c.) Trigeminal (V)
d.) Vagus (X)

Correct Answer: b.) Facial (VII)