**BASSEY MARVELLOUS**

**17/MHS01/081**

**ANA 301**

**GROSS ANATOMY OF HEAD AND NECK**

# **QUESTION 1: Discuss anatomy of the tongue and comment on its applied anatomy**

The tongue is attached by muscles to the hyoid bone, mandible, styloid process, palate and pharynx. It is divided by a V shaped sulcus terminalis into two parts- An anterior two-thirds and a posterior one-third which differ developmentally, structurally and in innervation.

## **MUSCLES OF THE TONGUE.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| MUSCLE | ORIGIN | INSERTION | INNERVATION | ACTION |
| Tensor veli palatini | Scaphoid fossa, spine of sphenoid, cartilage of auditory tube | Tendon hooks around hamulus of medial pterygoid plate to insert into aponeurosis of soft palate | Mandibular branch of trigerminal nerve | Tenses soft palate |
| Levator veli palatini | Petrous part of temporal bone, cartilage of auditory tube | Aponeurosis of soft palate | Vagus nerve via pharyngeal plexus | Elevates soft palate |
| Palatoglossus | Aponeurosis of soft palate | Dorsolateral side of tongue | Vagus nerve via pharyngeal plexus | Elevates tongue |
| Palatopharyngeus | Aponeurisis of soft palate | Thyroid cartilage and side of pharynx | Vagus nerve via pharyngeal plexus | Elevates pharynx, closes nasopharynx |
| Musculus uvulae | Posterior nasal spine of palatine bone, palatine aponeurosis | Mucous membrane of uvula | Vagus nerve via pharyngeal plexus | Elevates uvula |

## **LINGUAL PAPILLAE**

These are small nipple shaped projections on the anterior two-thirds of the dorsum of the tongue. They are divided into the vallate, fungiform, filiform, and foliate papillae

1. **VALLATE PAPILLAE**: Are arranged in form of a V infront of the sulcus terminalis. They are studded with numerous taste buds and are innervated by the Glossopharyngeal nerve.
2. **FUNGIFORM PAPILLAE**: Are mushroom-shaped projections with red heads and are scattered on the sides and apex of the tongue.
3. **FILIFORM PAPILLAE:** Are numerous slender, conical projections that are arranged in rows parallel to the sulcus terminalis.
4. **FOLIATE PAPILLAE:** Are found in certain animals’ but are rudimentary in humans.

## **LINGUAL TONSIL**

It is a collection of nodular masses of lymphoid follicles on the posterior one-third of the dorsum of the tongue.

## **INNERVATION**

In the anterior 2/3, general sensation is supplied by the [**trigeminal nerve**](https://teachmeanatomy.info/head/cranial-nerves/trigeminal-nerve/) (CNV). Specifically the **lingual nerve**, a branch of the **mandibular nerve**(CN V3).

On the other hand, taste in the anterior 2/3 is supplied from the [**facial nerve**](https://teachmeanatomy.info/head/cranial-nerves/facial-nerve/) (CNVII). In the petrous part of the [temporal bone](https://teachmeanatomy.info/head/osteology/temporal-bone/), the [facial nerve](https://teachmeanatomy.info/head/cranial-nerves/facial-nerve/) gives off three branches, one of which is **chorda tympani**. This travels through the [middle ear](https://teachmeanatomy.info/head/organs/ear/middle-ear/), and continues on to the tongue.

The posterior 1/3 of the tongue is slightly easier. Both touch and taste are supplied by the [**glossopharyngeal** **nerve**](https://teachmeanatomy.info/head/cranial-nerves/glossopharyngeal-nerve/) (CNIX).

## **VASCULATURE**

The **lingual** **artery** (branch of the external carotid) does most of the supply, but there is a branch from the facial artery, called the **tonsillar artery**, which can provide some collateral circulation. Drainage is by the **lingual** **vein**.

## **LYMPHATIC DRAINAGE**

The lymphatic drainage of the tongue is as follows:

* **Anterior two thirds** – initially into the submental and submandibular nodes, which empty into the deep cervical lymph nodes
* **Posterior third** – directly into the deep cervical lymph nodes

## **CLINICAL CORRELATES**

**TONGUE TIE (ANKYLOGLOSSIA)** is an abnormal shortness of the frenulum linguae, resulting in limitation of its movement and thus a severe speech impediment. It can be surgically corrected by cutting the frenulum

# **Question 2: Write an essay on air sinuses**

The paranasal sinuses are air-filled extensions of the respiratory part of the nasal cavity. There are four paired sinuses, named according to the bone in which they are located; maxillary, frontal, sphenoid and ethmoid.

**Frontal Sinuses:** These are the most superior in location, found under the forehead. The frontal sinuses are variable in size, but always triangular-shaped. They drain into the nasal cavity via thefrontonasal duct, which opens out at the hiatus semilunaris on the lateral wall.

**Sphenoid Sinuses:**  The sphenoid sinuses also lie relatively superiorly, at the level of the spheno-ethmodial recess.  They are found more posteriorly, and are related superiorly and laterally to the cranial cavity. The sphenoid sinuses drain out onto the roof of the nasal cavity.  The relationships of this sinus are of clinical importance – the**pituitary gland** can be surgically accessed via passing through the nasal roof, into the sphenoid sinus and through the sphenoid bone.

**Ethmoidal Sinuses:** There are three ethmoidal sinuses; anterior, middle and posterior. They empty into the nasal cavity at different places:

* Anterior – Hiatus semilunaris
* Middle – Ethmoid bulla
* Posterior – Superior meatus

**Maxillary Sinuses:**The largest of the sinuses. It is located laterally and slightlyinferiorly to the nasal cavities. It drains into the nasal cavity at the hiatus semilunaris**,** underneath the frontal sinus opening. This is a potential pathway for spread of infection – fluid draining from the frontal sinus can enter the maxillary sinus.