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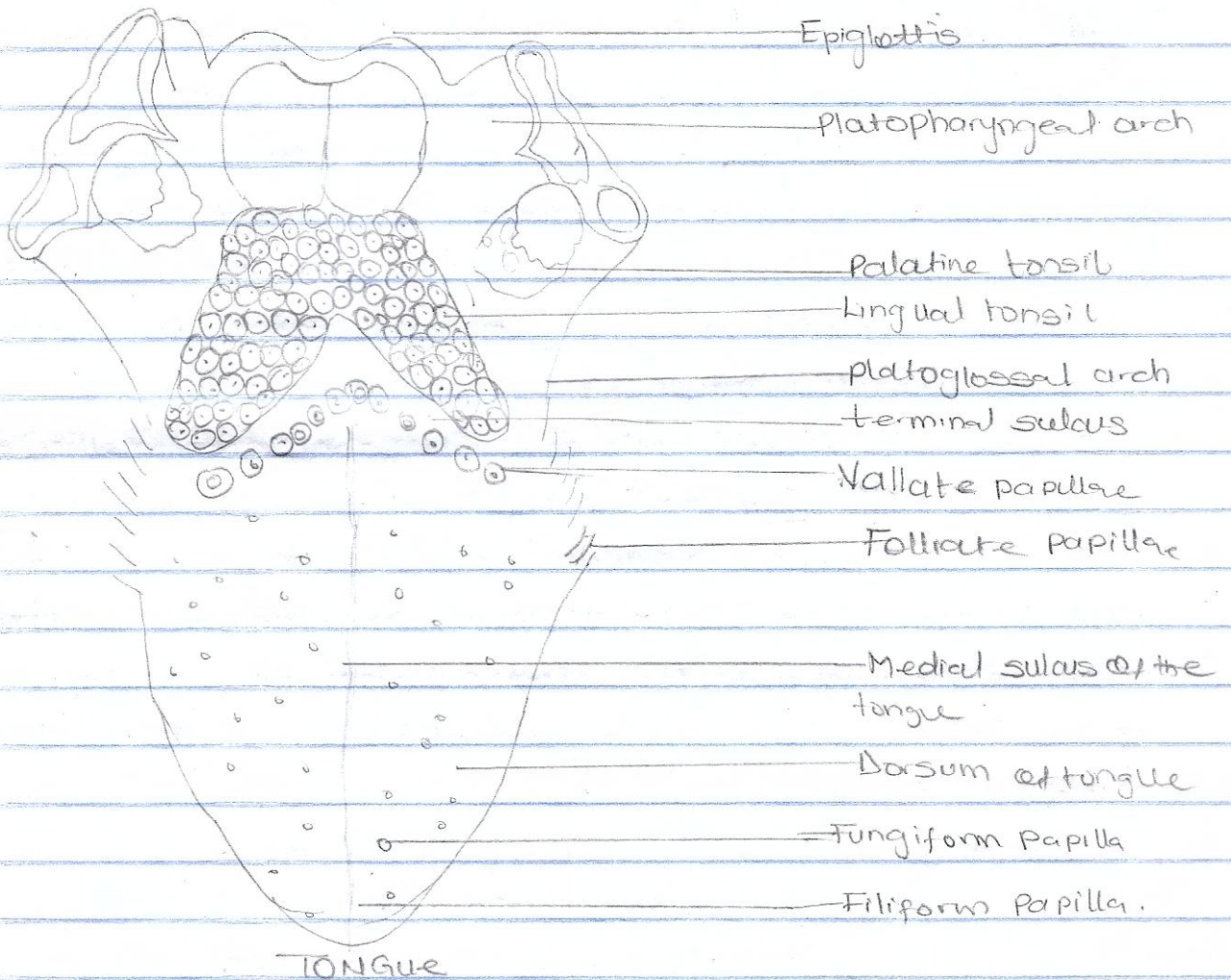
MATRIC NO: 17/MTHSA/1097

COURSE :

DATE : 29th April 2020

Assignment.

Discuss the gross anatomy of the tongue and comment on its clinical anatomy.



The tongue is a mobile muscular organ that lies within the mouth and partly extends into the upper throat. The tongue helps in perception of gustatory stimuli, it also plays an important role in mastication, deglutition and speech formation. The tongue has two surfaces; Dorsal and Ventral surfaces.

Relations

Anterior and lateral to the tongue is the teeth.

Superior to it is hard and soft Palates

Inferior to it is mucosa of the floor of the oral cavity,

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Sublingual Salivary glands, posterior wall of oropharynx.

Posterior to the tongue is epiglottis, pharyngeal inlet.

Lateral to it is palatoglossal and palatopharyngeal arches.

The bumps on the tongue are called papillae and these vary in shape and location and are associated with taste buds.

One of the most important land marks of the tongue is the central and terminal sulcus, lying about $\frac{2}{3}$ from the tip of tongue.

The tongue is further divided into right and left halves by the midline groove and just below the tongue groove's surface lies the fibrous septum.

The lingual frenulum is a large midline fold of mucosa that passes from the tongue side of the gums to the lower surface of the tongue. The frenulum connects the tongue to the floor of the mouth while allowing the tip to move freely. It is notable that the submandibular salivary glands has a duct that opens beneath the tongue passing saliva into the mouth.

The tongue is divided into the following parts.

1. Root: This is defined as back third of the tongue. It sits low in the mouth and near the throat. It is attached to hyoid bone and mandible. It is fixed in a place.
2. Body: The rest of the tongue, notably the forward $\frac{2}{3}$ that lie in front of the sulcus. It is extremely mobile.
3. Apex: This is the tip of the tongue, a pointed portion most forward in the mouth. It is also extremely mobile.
4. Dorsum: This is the curved upper surface toward the back. It has a V-shaped groove on it called terminal sulcus.
5. Inferior Surface: underneath the tongue lies this surface. Important for the ability to visualize veins that allow rapid absorption for specific medications.

Muscle	Origin	Insertion	Innervation	Blood supply	Action
Genioglossus	Superior mental spine of mandible	entire length of dorsum of tongue, Lingual aponeurosis, body of hyoid bone	Hypoglossal Nerve (CNXII)	Sublingual branch of lingual artery	Depresses and protracts tongue (bi-lateral direction) Deviates contralaterally tongue
Hyoglossus	Body and greater horn of hyoid bone	Inferior part of lateral tongue	Hypoglossal Nerve (CNXII)	Sublingual branch of lingual artery submental branch of facial artery	Depresses and retracts tongue
Styloglossus	anterolateral aspect of styloid process Stylomandibular ligament	blends with inferior longitudinal muscle blends with hyoglossus muscle oblique part	Hypoglossal Nerve (CNXII)	Sublingual branch of lingual artery	retracts and elevates lateral aspect of tongue.
Palatoglossus	palatine aponeurosis of soft palate.	lateral margins of tongue, blends with intrinsic muscles of tongue	Vagus Nerve (CNX) via branches of pharynx & pleats.	Ascending palatine branch of facial artery Ascending pharyngeal artery	elevates roots of tongue constricts isthmus of fauces.

INTRINSIC MUSCLES OF TONGUE: these muscles are confined to each half of the organ and contribute to altering the shape of the tongue

Muscles	Origin	Insertion	Innervation	Blood supply	Action
1. Superior longitudinal	Submucosa of posterior tongue, lingual septum	Apex or anterolateral margins of tongue	Hypoglossal Nerve (CN XII)	lingual branch of external carotid artery	Retracts and broadens tongue, elevates apex of tongue.
2. Inferior longitudinal	Root of hyoid bone	Apex of tongue	Hypoglossal Nerve (CN XII)	lingual branch of external carotid artery	retracts and broadens tongue, lowers apex of tongue.
3. Transverse Muscle	lingual septum	lateral margin of tongue	Hypoglossal Nerve (CN XII)	lingual branch of external carotid artery	narrow and elongates the tongue.
4. Vertical Muscle	Root of tongue, geniohyoid muscle	lingual aponeurosis	Hypoglossal Nerve (CN XII)	lingual branch of external carotid artery	broadens and elongates tongue

BLOOD SUPPLY TO THE TONGUE:

The vascular supply to the tongue is provided by derivatives of lingual artery. This is a branch of carotid artery.

The branches of lingual artery are;

1. Dorsal lingual arteries & arises from medial to hyoglossus. It gives branches to palatoglossus, soft palate, palatine tonsils and epiglottis

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2. Sublingual arteries It travels towards sublingual glands in the floor of oral cavity.
3. Deep lingual artery: arises when lingual artery terminates near lingual frenulum on the ventral surface of tongue.

VEINS

Veins are named similar to the arteries they accompany; Deep lingual vein, sublingual vein,

LYMPHATIC DRAINAGE

It is divided into marginal and Central groups and Dorsal groups.

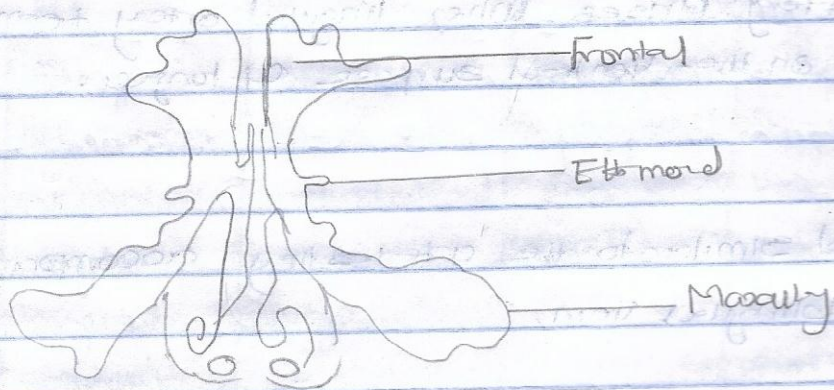
Marginal and central groups drain anterior parts of tongue while Dorsal group drains lymph from posterior third of tongue.

Marginal lymph vessels carry lymph to submandibular nodes or jugulo-omohyoid nodes. The vessels from central region may go to the deep cervical nodes.

CLINICAL ANATOMY

1. Ankyloglossia: the lingual frenulum connects middle of the lower surface of the tongue to floor of the mouth. If it is too short, often from birth, the tongue may be abnormally retracted into the lower jaw. This lower position leads to condition known as 'tongue tied'. Frenulectomy (surgical clipping of frenulum) may be done.
2. Genioglossus muscle paralysis: when this muscle becomes paralyzed the tongue fall backward, potentially obstructing the airway and increasing the risk of suffocation.
3. Hypoglossal Nerve injury: trauma to lower jaw may cause fracture of hypoglossal nerve resulting in paralysis and eventual shrinking of one side of the tongue.

Write an Essay on Air Sinuses.



AIR SINUSES

Paranasal Sinuses are air cavities that help circulate the air that is breathed in and out of respiratory system. They are situated around the nasal cavity and they are all paired and sometimes symmetrical, while always bilateral. There are four different pairs of sinuses.

1. Maxillary sinus: is the largest of all the air sinuses. they have thin walls which are often perforated by the long roots of the posterior maxillary teeth. The superior border of the sinus is bony orbit, the inferior is the maxillary alveolar bone and corresponding teeth roots, the medial border is made up of nasal cavity and the lateral and anterior border is limited by cheek bones.

Vasculature and lymphatics

The submandibular lymph nodes are the main destination during lymphatic drainage.

The blood supply is from

anterior superior alveolar artery

middle superior artery

posterior superior alveolar artery.

2. Frontal Sinus: anteriorly it's contained by forehead and the superciliary arches, superiorly and posteriorly by the anterior cranial fossa and inferiorly by the bony orbit the anterior ethmoidal sinuses and nasal cavity. Medially the sinuses fuse one another separated by midline. It is irregular in shape and it is underdeveloped at birth.

Vasculature, Innervation and lymphatics.

→ they drain primarily into ethmoidal infundibulum and the corresponding lymph drainage via the submandibular lymph nodes. It is innervated by ophthalmic nerve including the supraorbital and supratrochlear branches. It is supplied by

Anterior ethmoid artery

Supraorbital artery

Supratrochlear artery.

3 Sphenoidal Sinus: the most posterior of all the sinuses in the head. Made by the sphenoid bone. Laterally, a cavernous sinus exist which is a part of the middle cranial fossa and also the carotid artery and cranial nerves III, IV, V₁, V₂ and VI.

Vasculature and lymphatics.

→ The lymphatic drainage occurs in the same way as the posterior ethmoid sinus.

4. Ethmoidal Sinus: Superior to it is anterior cranial cranial fossa and frontal bone, laterally the orbit and nasal cavity medially. On each midline, anywhere from 3-18 ethmoidal air cells may be group together.

Vasculature.

Anterior and posterior ethmoidal arteries as well as posterior lateral nasal branches.

Lymphatics.

Submandibular lymph nodes.

Clinical Correlates

Sinusitis: inflammation of epithelia of sinuses. The

causes can be either viral or bacterial infection or an

allergic reaction. The inflammation may be acute or chronic

and the maxillary sinus is most commonly affected.