Agoha Chinaza

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MBBS

1. Discuss the anatomy of the tongue and write on it’s applied anatomy

 The tongue is a mobile muscular organ which is involved in taste, swallowing, mastication and oral cleansing. It is partly in the oral cavity and oropharynx and it has 3 parts and 2 surfaces namely;

Parts: the root- this is the posterior third of the tongue and it rests on the floor of the mouth

The body - this is the anterior two thirds of the tongue

The apex - anterior end of the tongue which rests against the incisor teeth

Surfaces: the dorsal surface (dorsum) - this is the posterosuperior surface located partly in oral cavity and oropharynx

The ventral surface- this is the inferior surface

 The median sulcus of the tongue separates the body into left and right halves. The terminal sulcus, or groove, is a V-shaped furrow that separates the body from the base of the tongue. At the tip of this sulcus is the foramen cecum, a remnant of the proximal thyroglossal duct. The base of tongue contains the lingual tonsils while the anterior part contains numerous small lingual papillae:

 1. Vallate papillae - large, flat papillae surrounded by troughs located directly anterior to terminal sulcus. Von ember glands secrete lipase into troughs to sis lipolysis

 2. Foliate papillae- located on lateral surface of the tongue

 3. Filiform papillae- numerous, thin & long located on the dorsum of the tongue(contains no taste receptors)

 4. Fungiform papillae- mushroom shaped scattered among filiform papillae

Median sulcus divides tongue into right and left halves While the inferior surface is connected to the floor of the mouth by the frenulum which allows movement of the anterior part

There are 4 basic taste sensation;

• Sweetness is detected at the apex

• Saltiness detected at the anterolateral margins

• Sourness detected at posterolateral margins

• Bitterness detected at posterior part of the tongue

**Muscles of the tongue**

The tongue contains extrinsic and intrinsic muscles which help in movement and shape alteration;

|  |  |  |
| --- | --- | --- |
| Muscle name  | Muscle type | Origin |
| Superior longitudinal  | Intrinsic  | Lingual septum and submucous fibrous layer  |
| Inferior longitudinal | Intrinsic  | Body of hyoid and base of tongue |
| Transverse | Intrinsic | Lingual septum |
| Vertical  | Intrinsic | Superior surface of the tongue  |
| Genioglossus | Extrinsic  | Mental spine of mandible |
| Hyoglossus | extrinsic | body and greater horn of hyoid  |
| Styloglossus | Extrinsic | styloid and stylohyoid ligament |
| Palatoglossus | Extrinsic | palantine aponeurosis  |

**Vasculature of the tongue**

 1. Arterial supply:

The arteries of the tongue are derived from lingual artery which arises from external carotid artery, within the tongue the lingual artery gives rise to its 3 main branches: the dorsal lingual, deep lingual, and sublingual arteries. The dorsal lingual artery supplies the base of the tongue. The deep lingual artery travels on the lower surface of the tongue and supplies the anterior part. A branch to the sublingual gland and the floor of the mouth is known as the sublingual artery.

 2. Venous drainage

The veins of my the tongue are dorsal lingual veins which accompany the lingual artery and joins the sublingual veins , directly or indirectly the veins drain into the internal jugular vein.

 3. The lymphatic drainage

Lymph from posterior thirds drains into the superior deep cervical lymph nodes

Lymph from medial part of anterior two thirds drain into the inferior deep crevicak lymph nodes

Lymph from lateral part of anterior two thirds drain to ge submanibular lymph nodes

Apex and frenulum drain to the sub mental lymph nodes

4. Nerve supply

• Motor innervation - all muscles of the tongue except palatoglossus(vagus nerve) receives this innervation from the hypoglossal nerve CNXII

• Sensory innervation - for the anterior two thirds the general sensation is supplied by lingual nerve while taste sensation is supplied by chorda tympani a branch of facial nerve

While the posterior third and vallate papillae is supplied by lingual branch of glossopharyngeal nerve for both general sensation and taste , internal laryngeal branch of vagus never also contributes.

## Applied anatomy

 1. Lingual carcinoma : carcinoma in the posterior part of the tongue meta stiles to superior deep get I am lymph nodes on both sides whereas those in the anterior part usually do not metastasize, due to the relation of the lymph nodes to the internal jugular veins it May spread to the region of the neck

 2. Frenectomy: this is the cutting of an overly large frenulum with affects speech and tongue movement

 3. Injury to hypoglossal nerve ; this results in paralysis and eventual atrophy of one side of the tongue

 4. Gag reflex : it is possible to touch the anterior part of the tongue with out feeling discomfort but when the posterior aspect is touched the individual gags. CNIX and CNX are responsible for the muscular contractions in the pharynx

2. Write an essay on air sinuses

Paranasal sinuses are air filled extensions of the respiratory part of the nasal cavity into the following cranial bones frontal, ethmoid, sphenoid and maxilla. They are named according to the bones in which they are located, examples are;

1. Frontal sinuses - these paired sinuses are between the outer and inner tables of the frontal bones, posterior to the super ciliary arches and the root of the nose. Each drain through a frontonasal duct into the ethmoidal infundibulum, which opens into the semilunar hiatus of the middle nasal meatus, they are innervated by the supraorbital nerves (CNV1)

Often, this since contains two parts a vertical part in the squamous part of the frontal bone and a horizontal part in the orbital part of the frontal bone.

2. Ethmoidal sinuses - these are small imvaginations of the mucous membrane of the superior and middle nasal meatus into the ethmoidal bone between the nasal cavity and the orbit. The anterior ethmoidal cells drain into the middle nasal meatus through the ethmoidal infundibulum, the middle ethmoidal sinus drains into the middle meatus, they are sometimes called bulbar cells because they form the ethmoidal bulla, the posterior ethmoidal sinus opens into the superior meatus. They are supplied by the anterior and posterior ethmoidal branches of nasociliary nerves

3. Sphenoidal sinuses - they are located in the body of the sphenoid but extend into the wings, they drain out onto the roof of the nasal cavity. The relationship of this sinus is of clinical importance because the pituitary gland can be surgically accessed via passing through the nasal roof into this sinus then into the bone

4. Maxillary sinuses- largest of the sinuses located in the body of the maxillae and communicate with middle meatus. It drains by openings maxillary ostium into the middle nasal meatus through semilunar hiatus, the arterial supply is mainly from superior alveolar branches of maxillary artery, descending and greater palatine arteries also supply the floor of the sinus . Innervation is mainly from branches from maxillary nerve