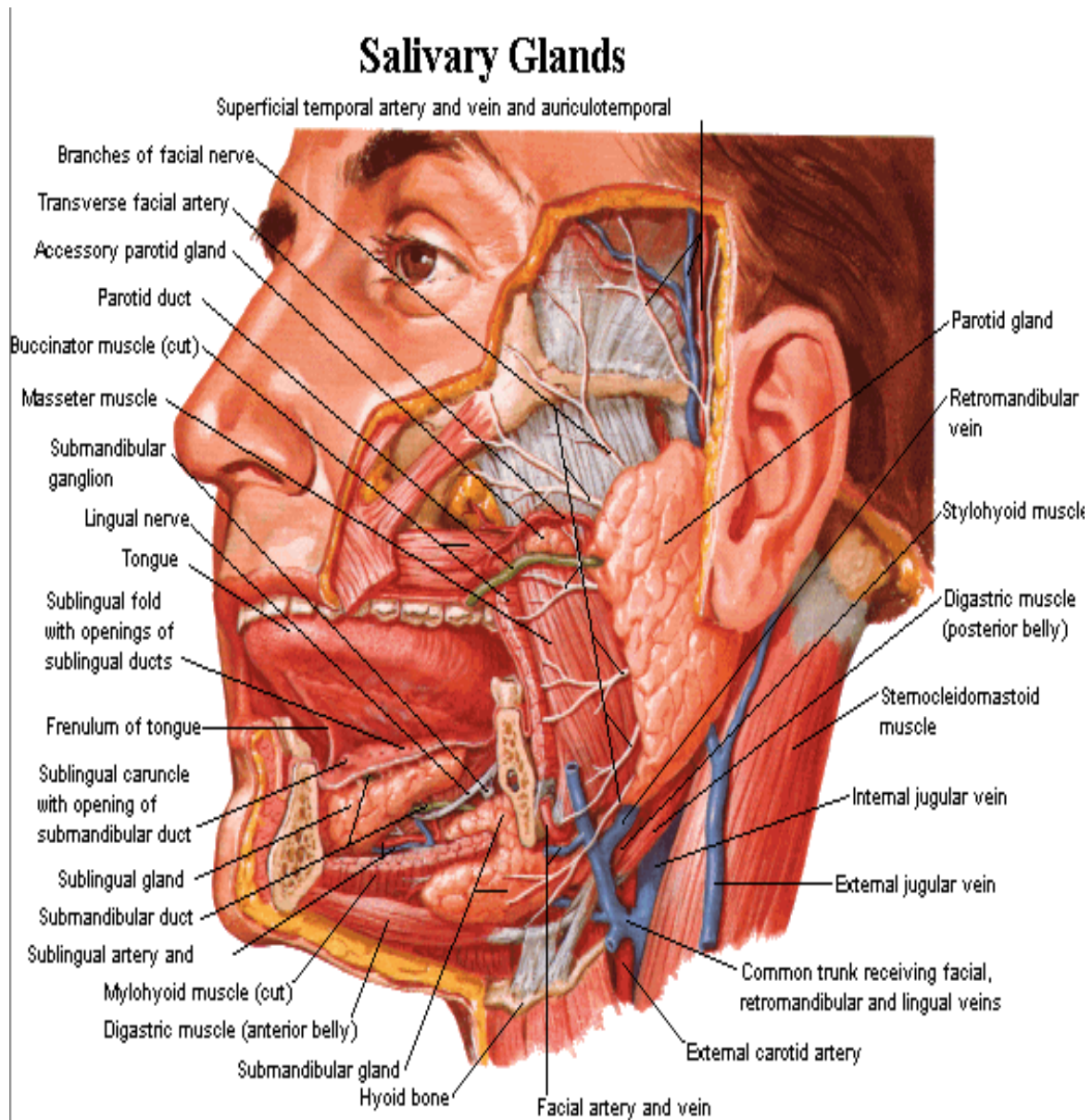


## Submandibular Salivary Gland

- ★ It lies below and deep to the body of the mandible.
- ★ It **consists of** superficial part, deep part and duct.



## I) Superficial Part of Submandibular Gland:

★ The **main part** of the gland which lies **superficial to the mylohyoid muscle**.

★ **Position:** It lies in the **submandibular fossa** of the mandible, extending from **mylohyoid line** (above), to overlap **intermediate tendon of digastric** (below), and from **mental foramen** (in front) to **angle** of mandible (behind).

### ★ Surfaces and Relations:

- The gland is **wedged** between the body of mandible and mylohyoid muscle.
- The gland has 3 surfaces: (lateral, medial, and inferolateral)

**a. Lateral surface:** It lies in contact with the inner surface of the body of mandible and has the following relations:

**1- Submandibular fossa of the mandible.**

**2- Insertion of medial pterygoid muscle.**

**3- Facial artery** notches the posterior end of the gland then runs between the gland and insertion of medial pterygoid.

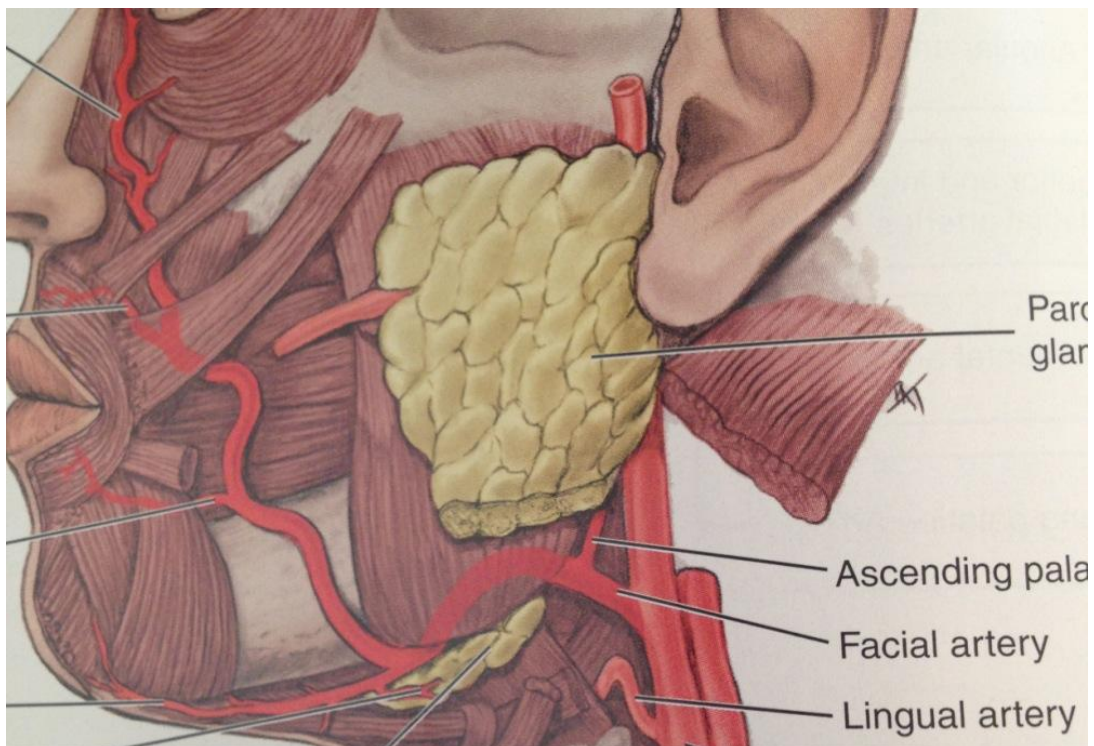
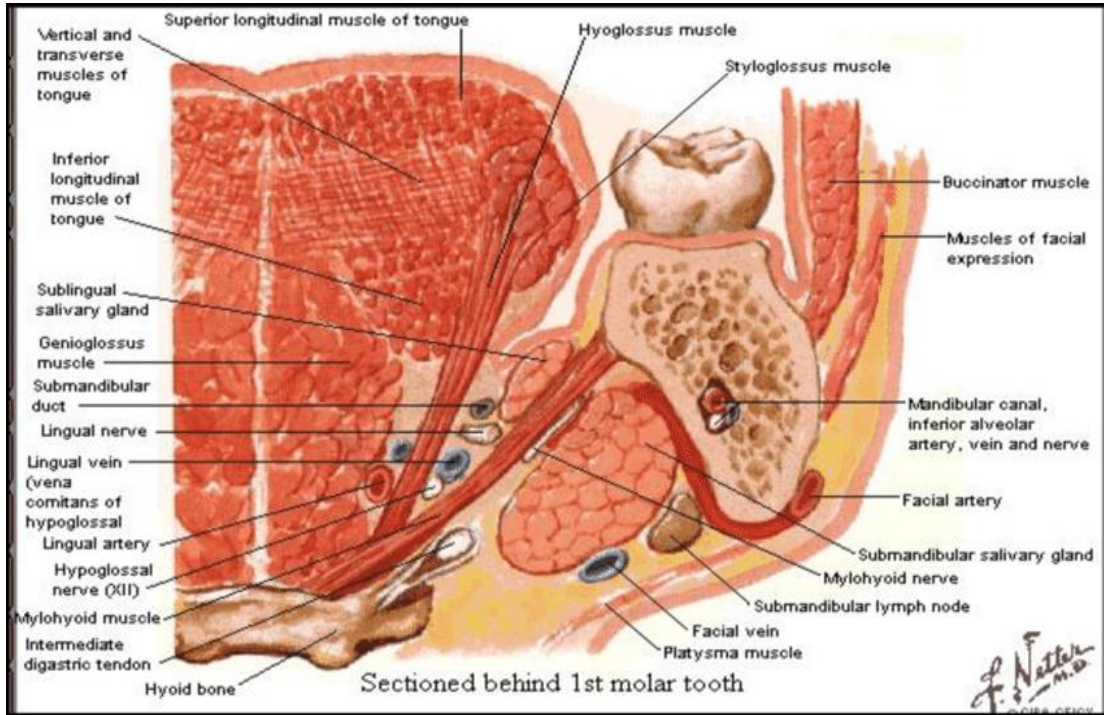
**b. Medial surface:** It has the following relations:

**1- Anterior part: Mylohyoid** muscle and nerve.

**2- Intermediate part: Hyoglossus** muscle with **lingual nerve above & hypoglossal nerve below** on its lateral surface.

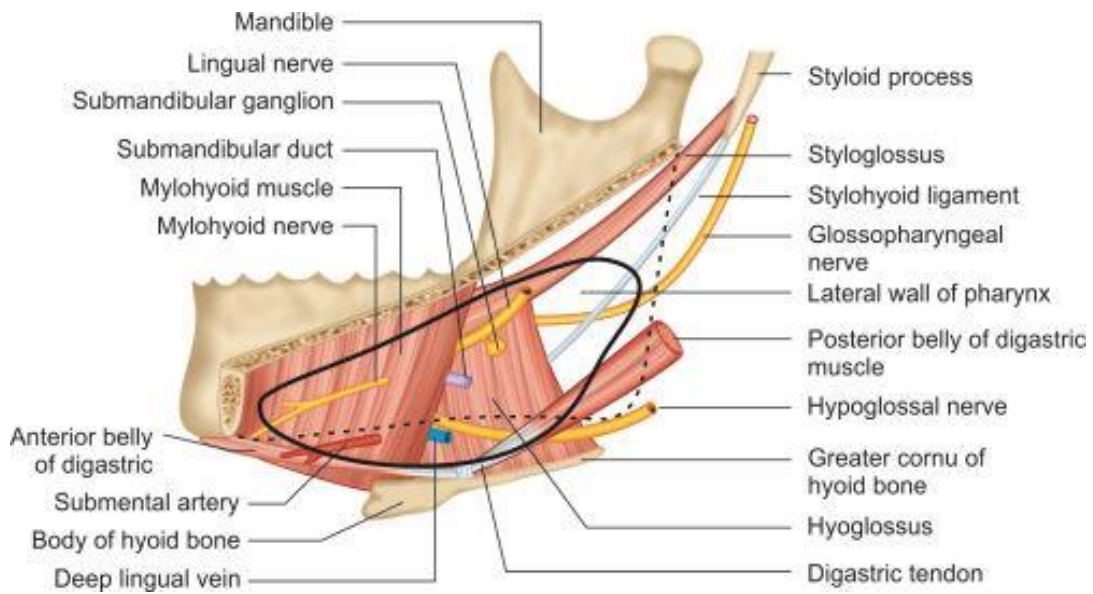
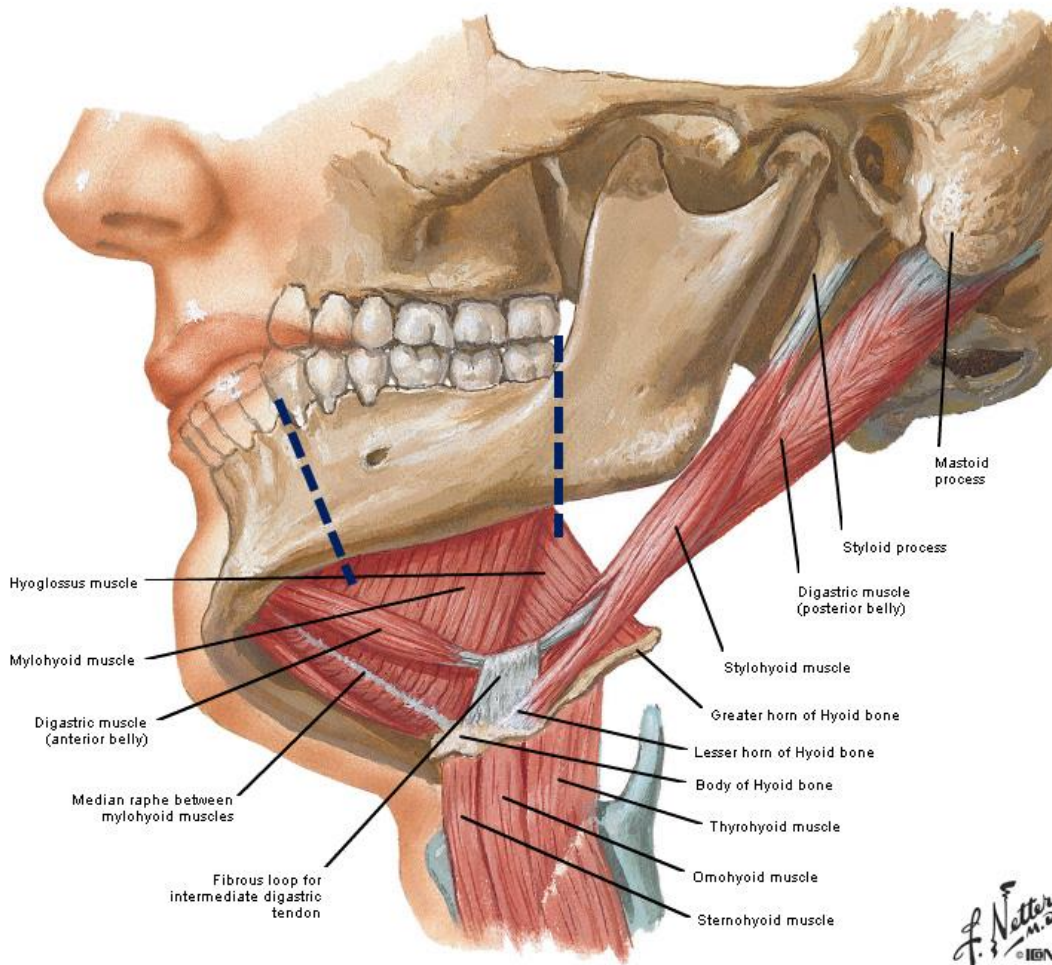
**3- Posterior part:** Styloglossus muscle, stylohyoid ligament and glossopharyngeal nerve.

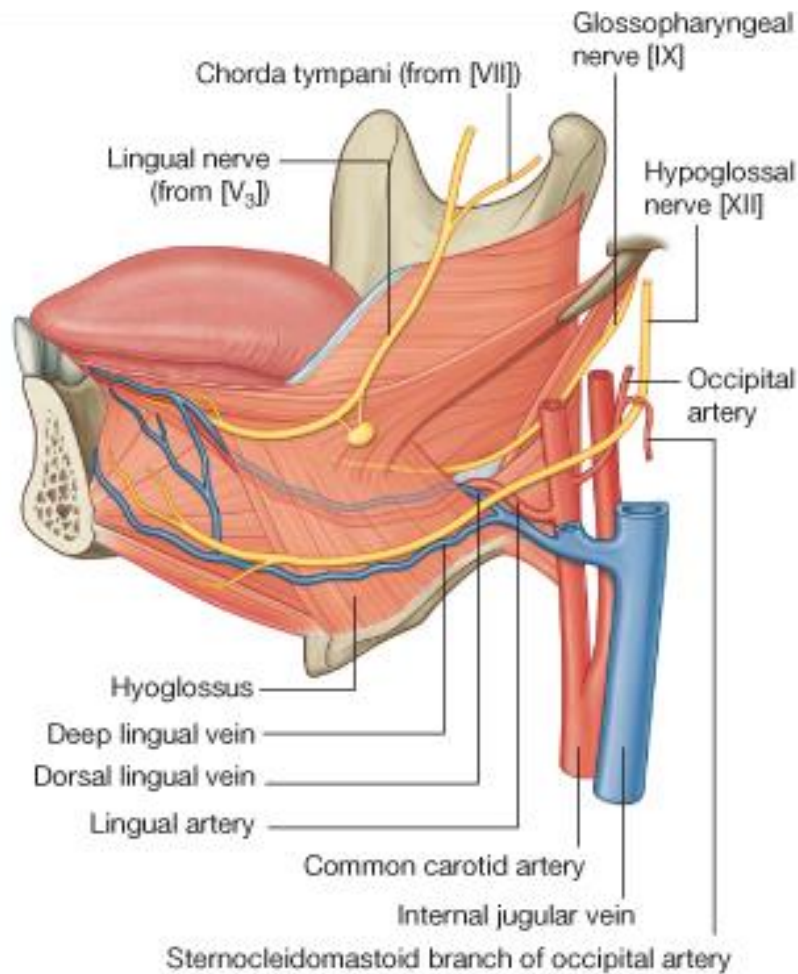
4- The **deep part** of the gland and its **duct** project from this surface. These 2 structures run together **between** mylohyoid and hyoglossus muscles.



# Floor of Mouth - Musculature

## Lateral, Slightly Inferior View



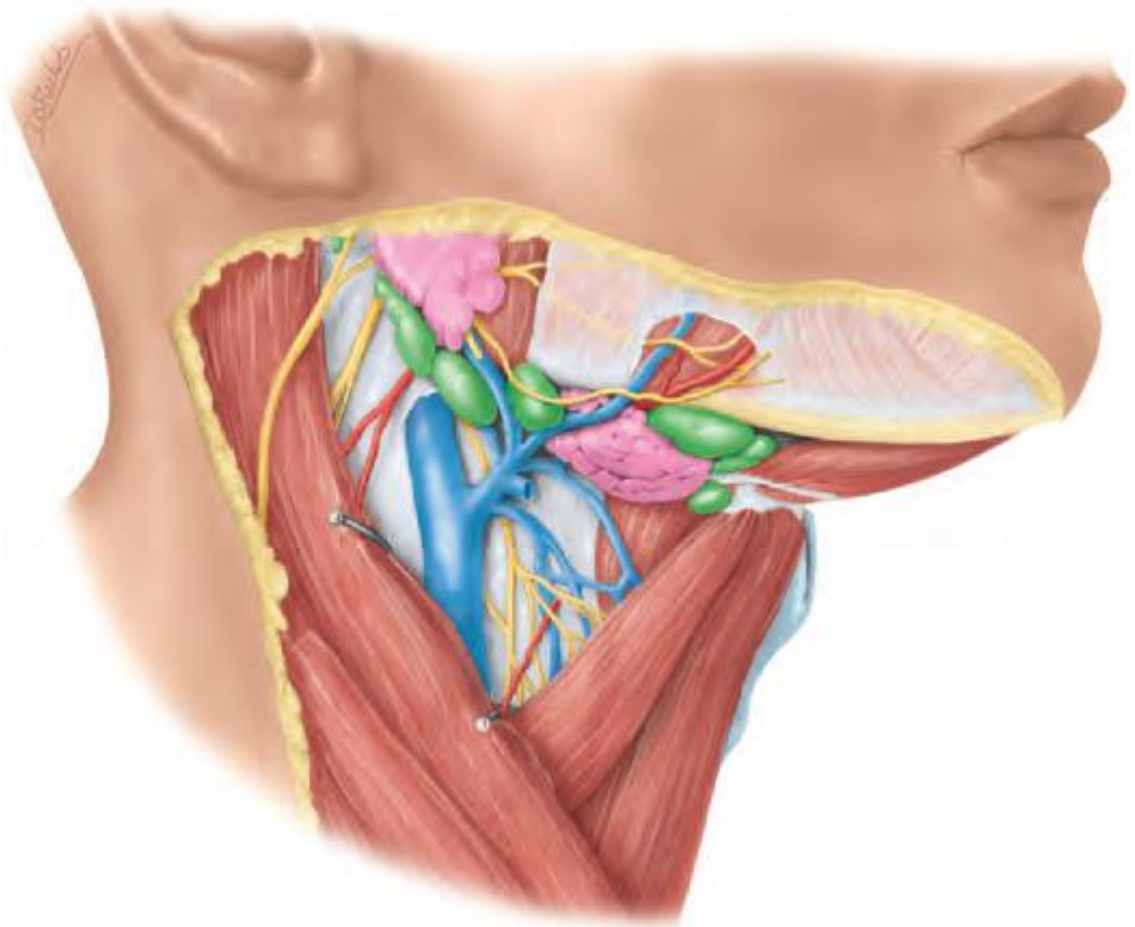
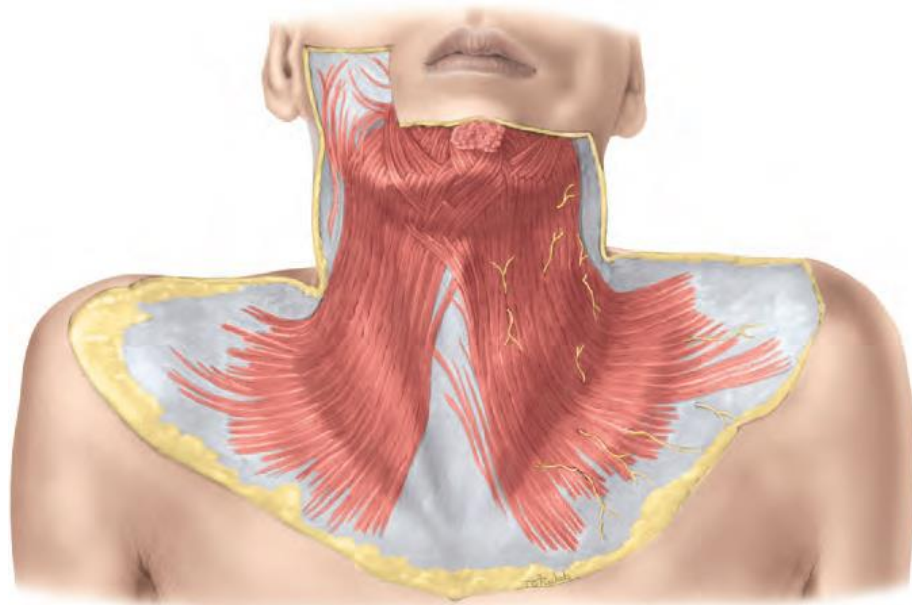


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**c. Infero-lateral surface:** It lies superficially below the mandible and has the following relations:

- 1-** Skin, platysma and deep fascia
- 2-** Submandibular lymph nodes.
- 3-** Facial vein.
- 4-** Cervical branch of facial nerve.

**d. Posterior border:** The facial artery ascends on the posterior border of the gland to which it is fixed by glandular branches which penetrate the gland.

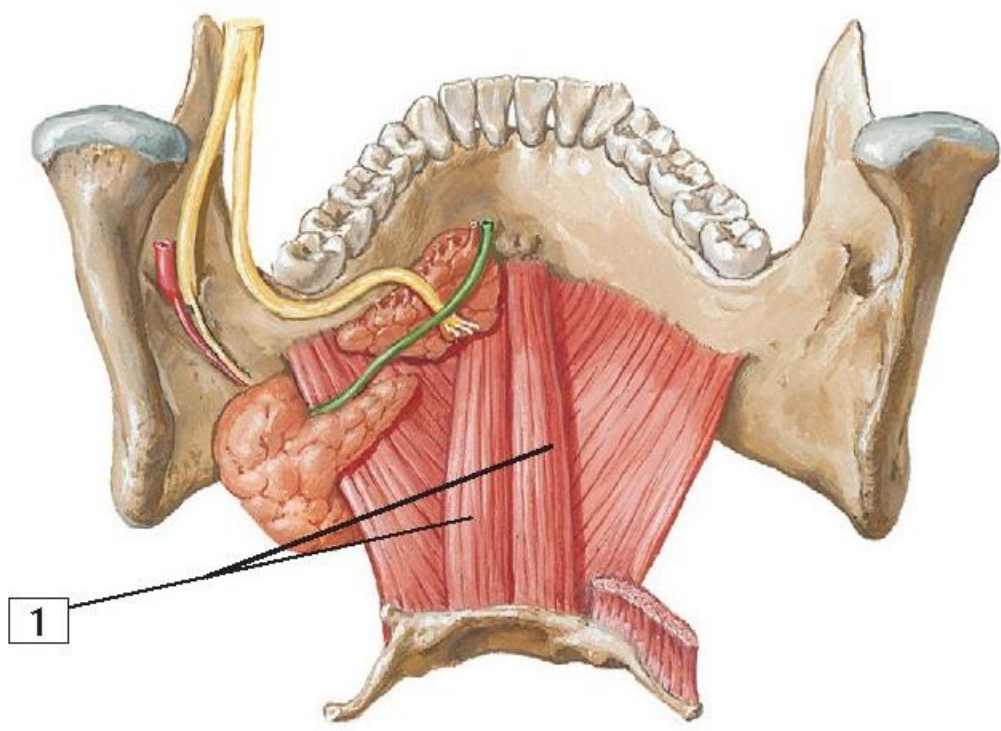
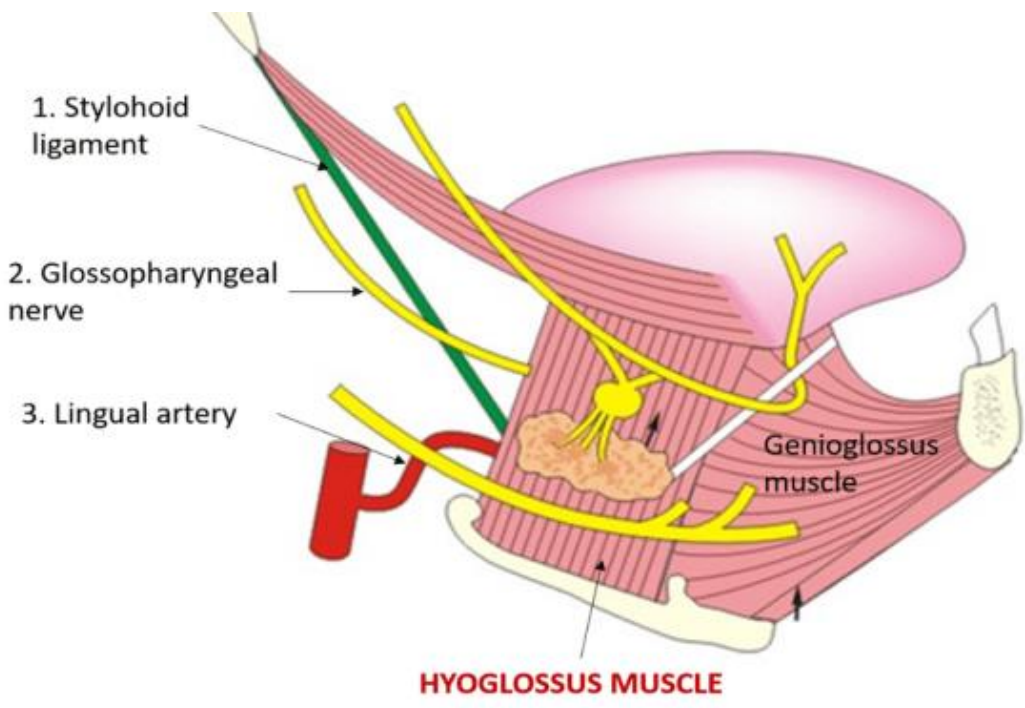


## **II) Deep Part of Submandibular Gland:**

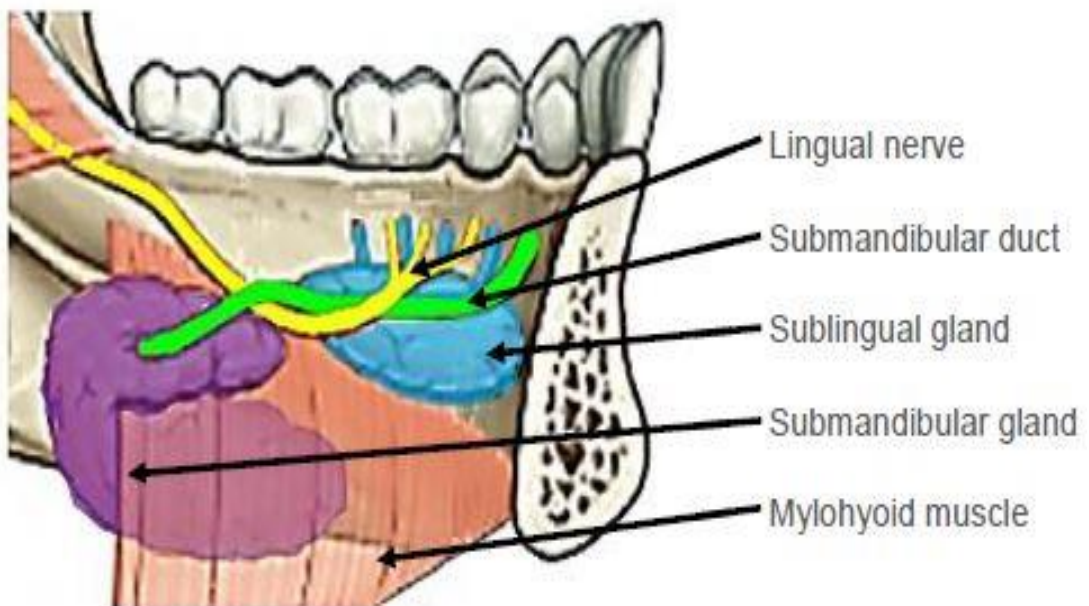
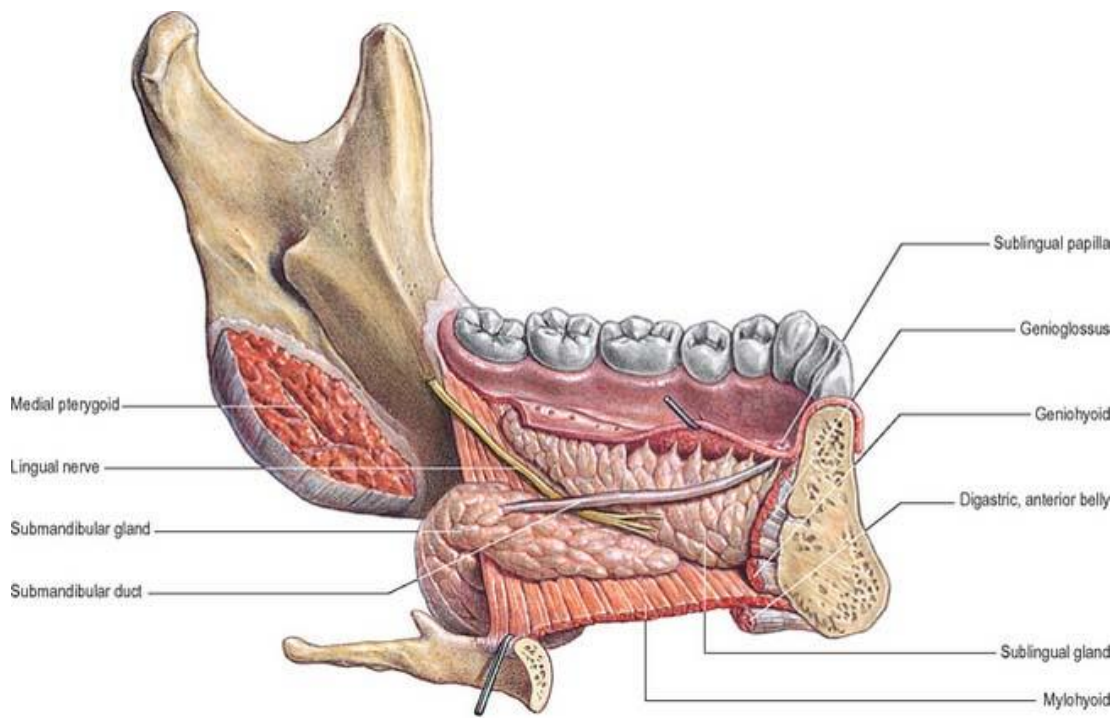
- It is process that extends **along submandibular duct**, deep to **mylohyoid**, on the lateral surface of **hyoglossus**, with **lingual** nerve above and **hypoglossal** nerve below.
- It is **continuous** with the superficial part of the gland **around** the **posterior** border of **mylohyoid** muscle.

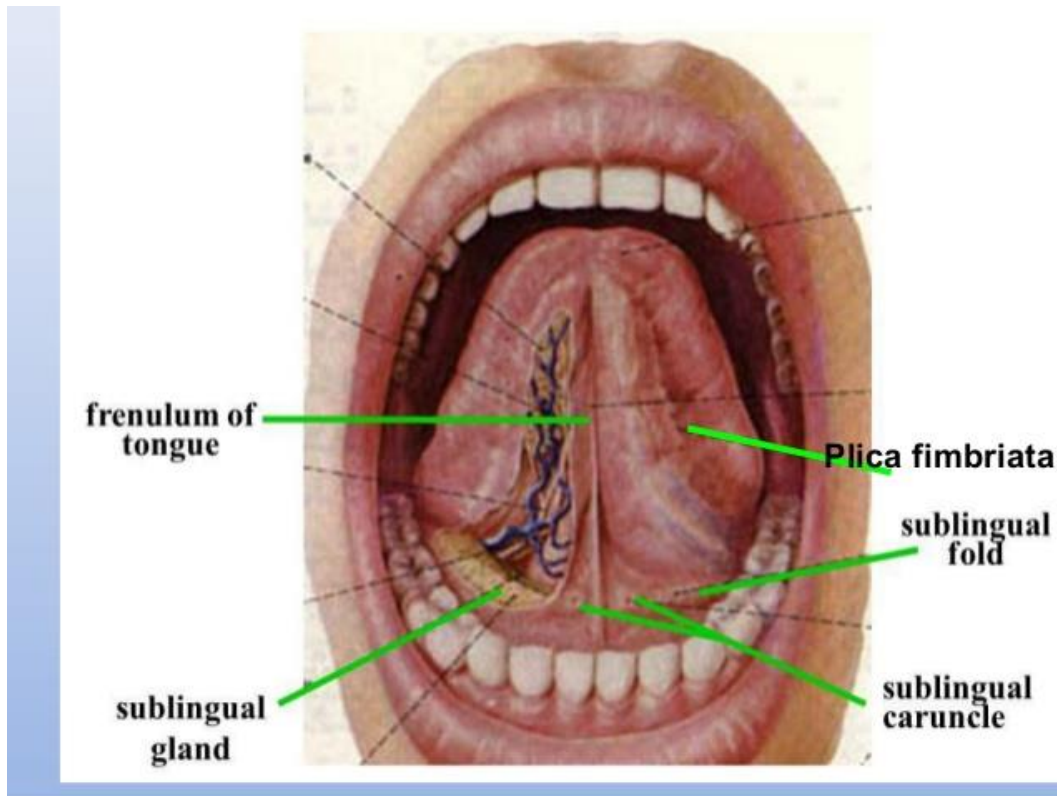
## **III) Submandibular Duct:**

- It **arises from** the medial surface of the superficial part of the gland.
- It is **5 cm** long.
- It runs **forwards** along the deep part of the gland **between mylohyoid and hyoglossus** muscles, with the **lingual** nerve & submandibular **gnglion (above)** and **hypoglossal** nerve (**below**).
- At the anterior border of hyoglossus, the **lingual nerve hooks** around the duct (lateral , below then medial to the duct i.e **triple relation** ).
- It then continues forwards **deep to sublingual gland on** genioglossus to **open in** the floor of mouth in the summit of the **sublingual papilla** on both sides of the frenulum of the tongue.









★ **Arterial supply:** facial artery.

★ **Nerve supply:**

- **All the following fibers pass through submandibular ganglion.**

1. **Parasympathetic:** chorda tympani from facial nerve.
2. **Sympathetic:** From sympathetic plexus around facial artery.
3. **Sensory:** From lingual nerve

★ **Applied Anatomy:**

1. **Salivary calculi** are more common in the submandibular salivary gland because:
  - Flow of saliva ***against gravity***.
  - The duct open in the ***floor of the mouth*** → liability to be blocked by foreign body.

- Secretion is more ***viscid***.
2. Salivary calculi may affect the **duct or the gland**.
  3. **Stone in submandibular duct can be felt** as hard nodule in the floor of the mouth.
  4. Submandibular salivary gland swelling and **pain increases by eating or sucking a lemon** (as parotid salivary gland swelling and pain).
  5. Submandibular salivary gland swelling is the **2<sup>nd</sup> common swelling** in the submandibular triangle (after L.Ns enlargement).
  6. In submandibular salivary gland stones or inflammations, the opening of submandibular duct is seen red, raised and discharging pus or blood, in the sublingual papilla.
  7. **Submandibular salivary gland swelling** is differentiated from L.Ns enlargement by:
    - Single.
    - Can not be rolled over the lower border of the mandible.
    - Increased by eating and sucking a lemon.
    - On bimanual examination, it is better felt from the floor of the mouth.
  8. **Pain due** to submandibular salivary gland disease is felt below the mandible and may radiate to the ***anterior 2/3 of the tongue*** (both supplied by lingual nerve) .
  9. Due to triple close relation of lingual nerve to submandibular duct (lateral, below then medial), a stone in the duct may

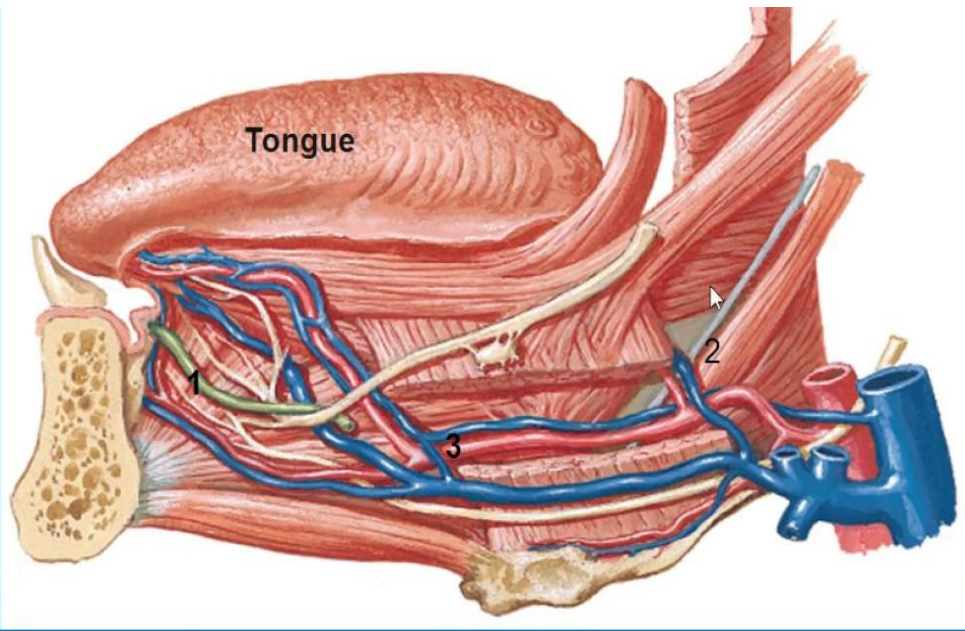
irritate the lingual nerve → pain is radiating to the anterior 2/3 of the tongue.

10. **Radiologically**, submandibular duct can be seen by submandibular sialography.



## Sublingual Gland

- ★ It is **almond** shaped (3 cm long), which lies **on genioglossus** muscle and raises the mucous membrane of the floor of the mouth forming the **sublingual fold**.
- ★ It has **8-12 fine ducts** which open in the **sublingual fold**, but few of them open in the **submandibular duct**.
- ★ **Relations:**
  - **Laterally:** Sublingual fossa of the **mandible**.
  - **Medially:** **Genioglossus** muscle with **submandibular duct** and **lingual nerve & vessels between** the gland and the muscle.
  - **Below:** Anterior part of **mylohyoid** muscle.
  - **Above:** Mucous membrane of mouth forming **sublingual fold** containing the **orifices of the ducts** of the gland.
- ★ **Blood supply:** Sublingual and submental blood vessels.
- ★ **Nerve supply:** All these fibers pass through the submandibular ganglion.
  1. **Parasympathetic:** From chorda tympani nerve
  2. **Sympathetic:** From plexus around lingual artery
  3. **Sensory:** From lingual nerve.



Genioglossus 1, stylopharyngeus 2ms.  
Lingual artery 3  
Glossopharyngeal nerve

