
بِسْمِ اللّٰهِ الرَّحْمٰنِ الرَّحِيْمِ

Gross Anatomy of Oral Cavity

DR. MAHVISH JAVED

ORAL CAVITY MOUTH

Extends from the lips to the oropharyngeal isthmus

The oropharyngeal isthmus:

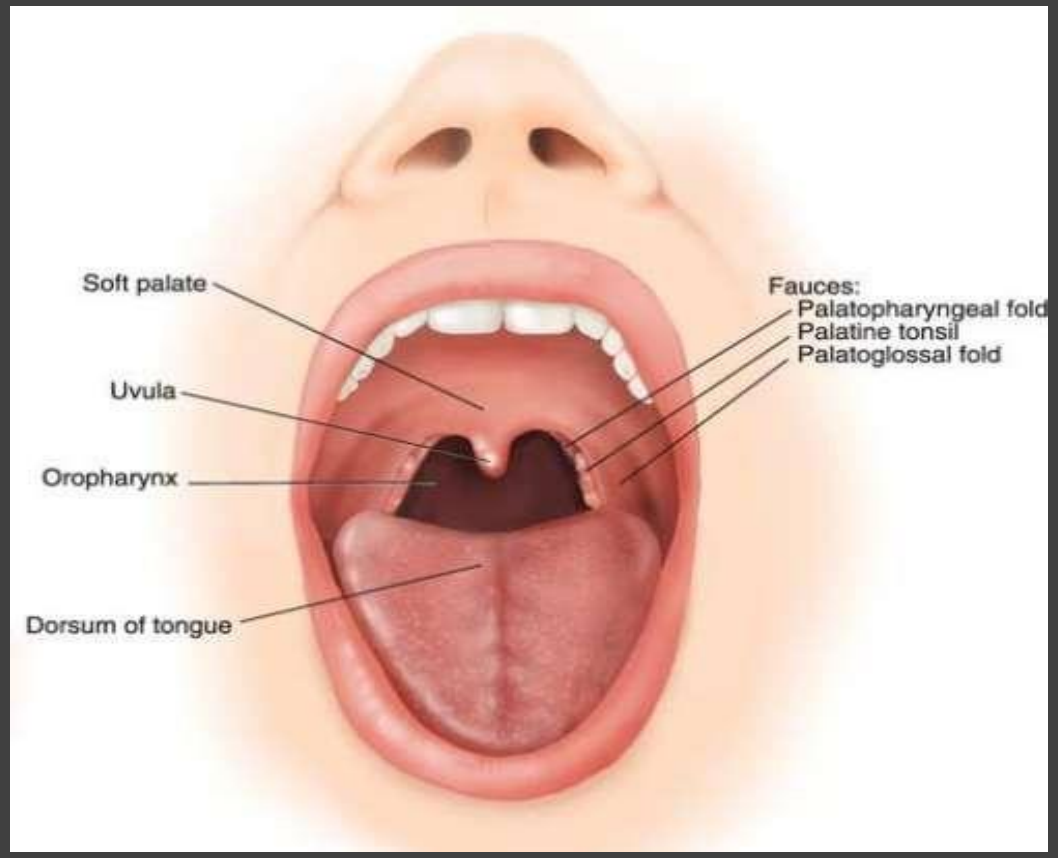
Is the junction of mouth and pharynx.

Is bounded:

Above by the soft palate and the palatoglossal folds

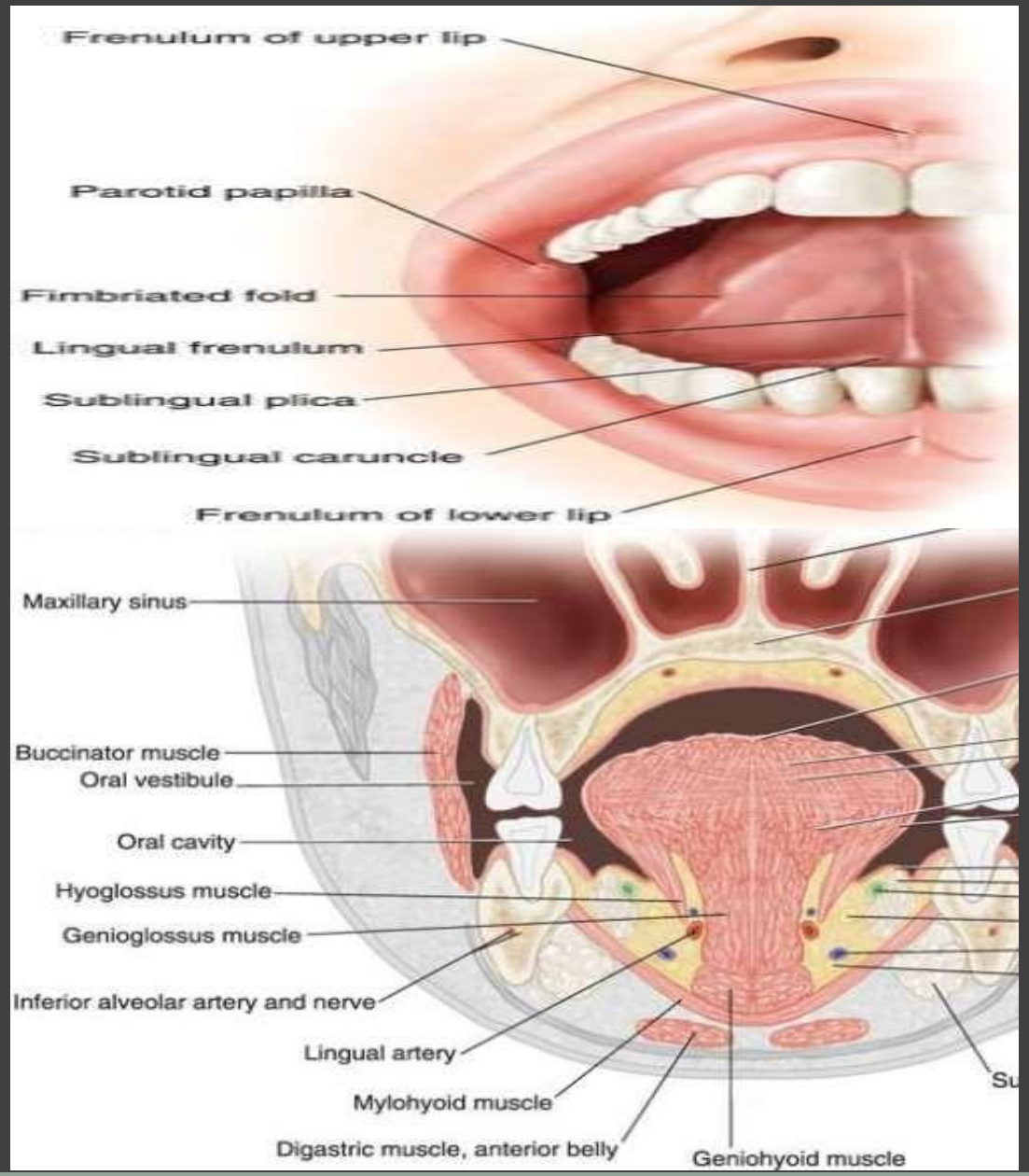
Below by the dorsum of the tongue

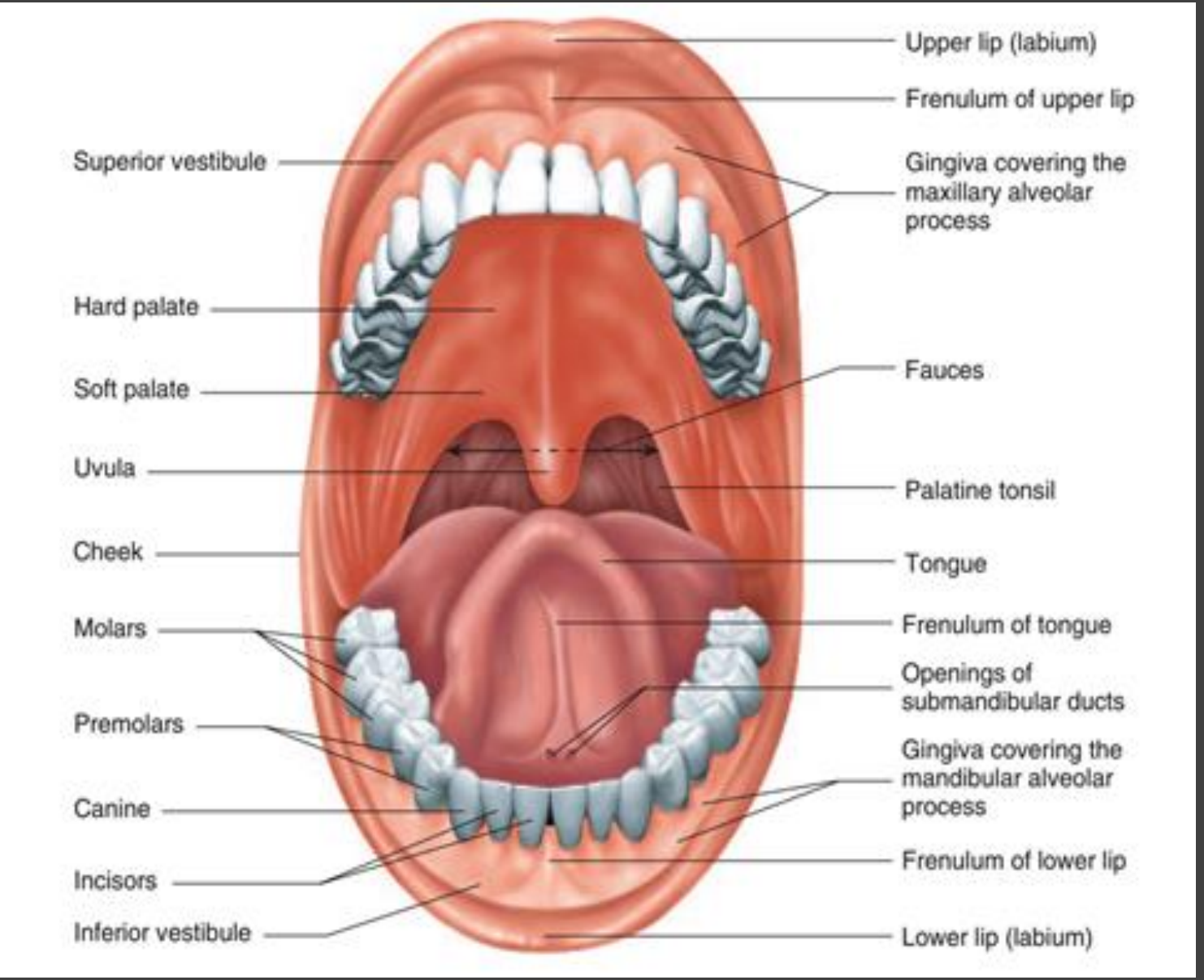
Subdivided into Vestibule & mouth cavity proper

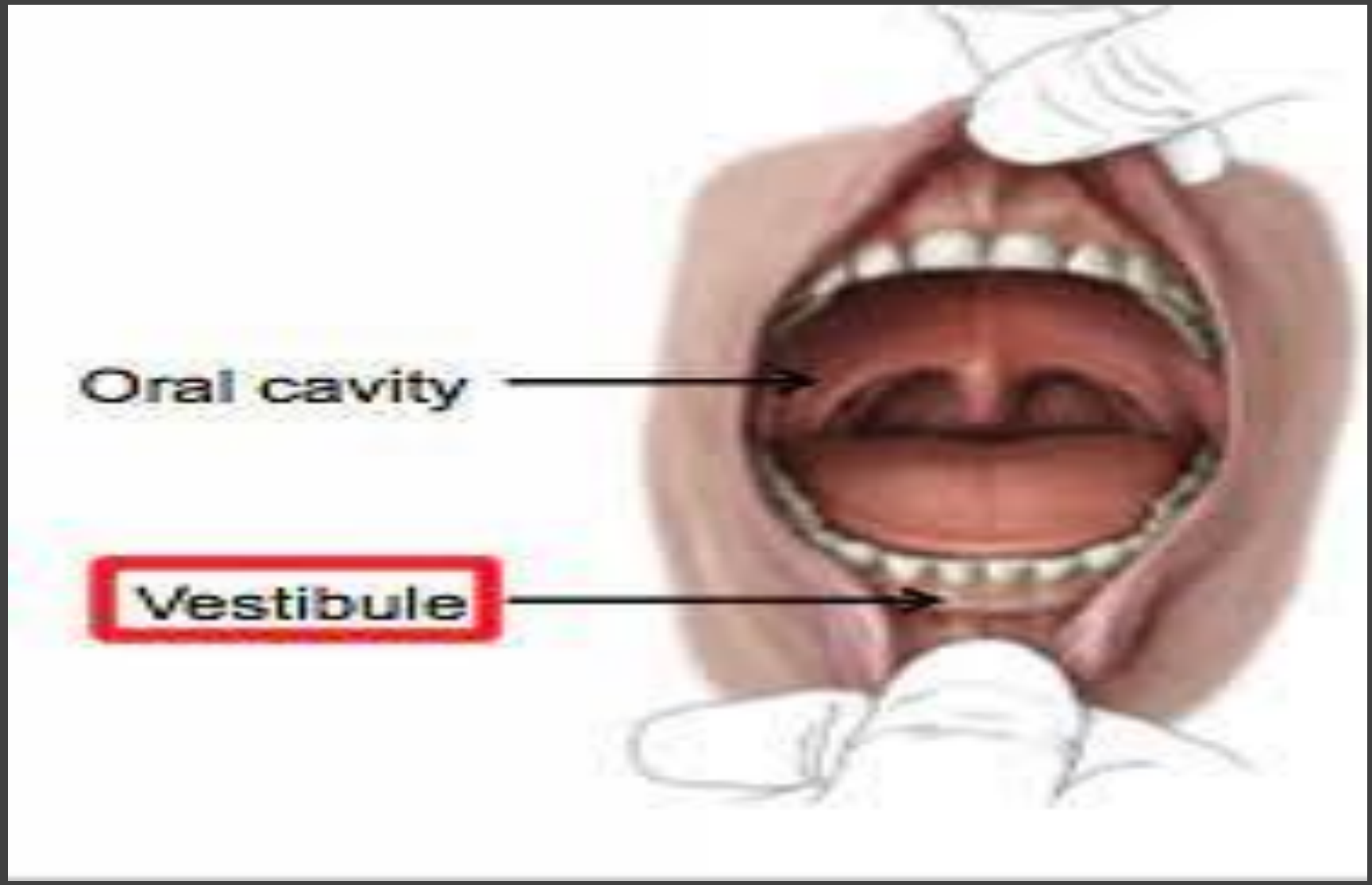


Vestibule

- Slitlike space between the lips and cheeks, teeth and the gums
- Communicates with the exterior through the oral fissure
- When the jaws are closed, communicates with the oral cavity proper behind the 3rd molar tooth on each side
- Superiorly and inferiorly limited by the reflection of mucous membrane from lips and cheek onto the gums

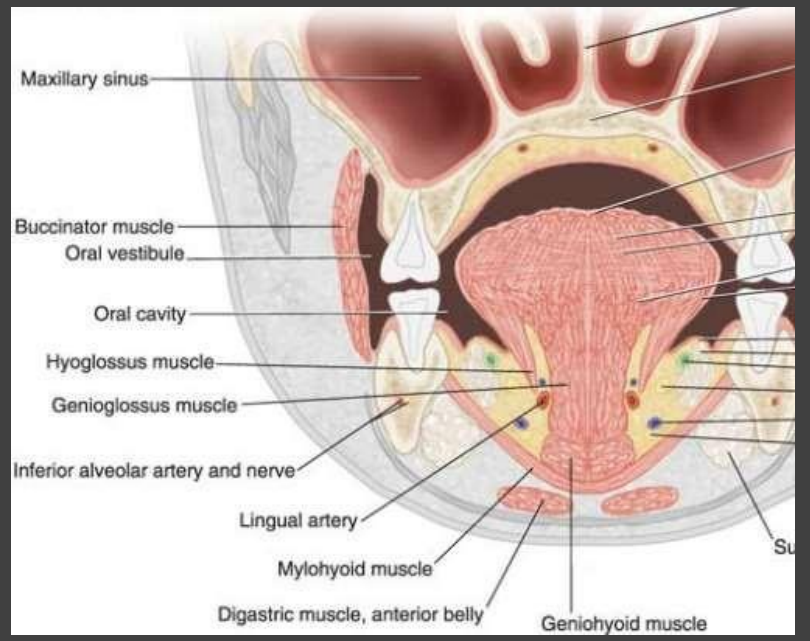


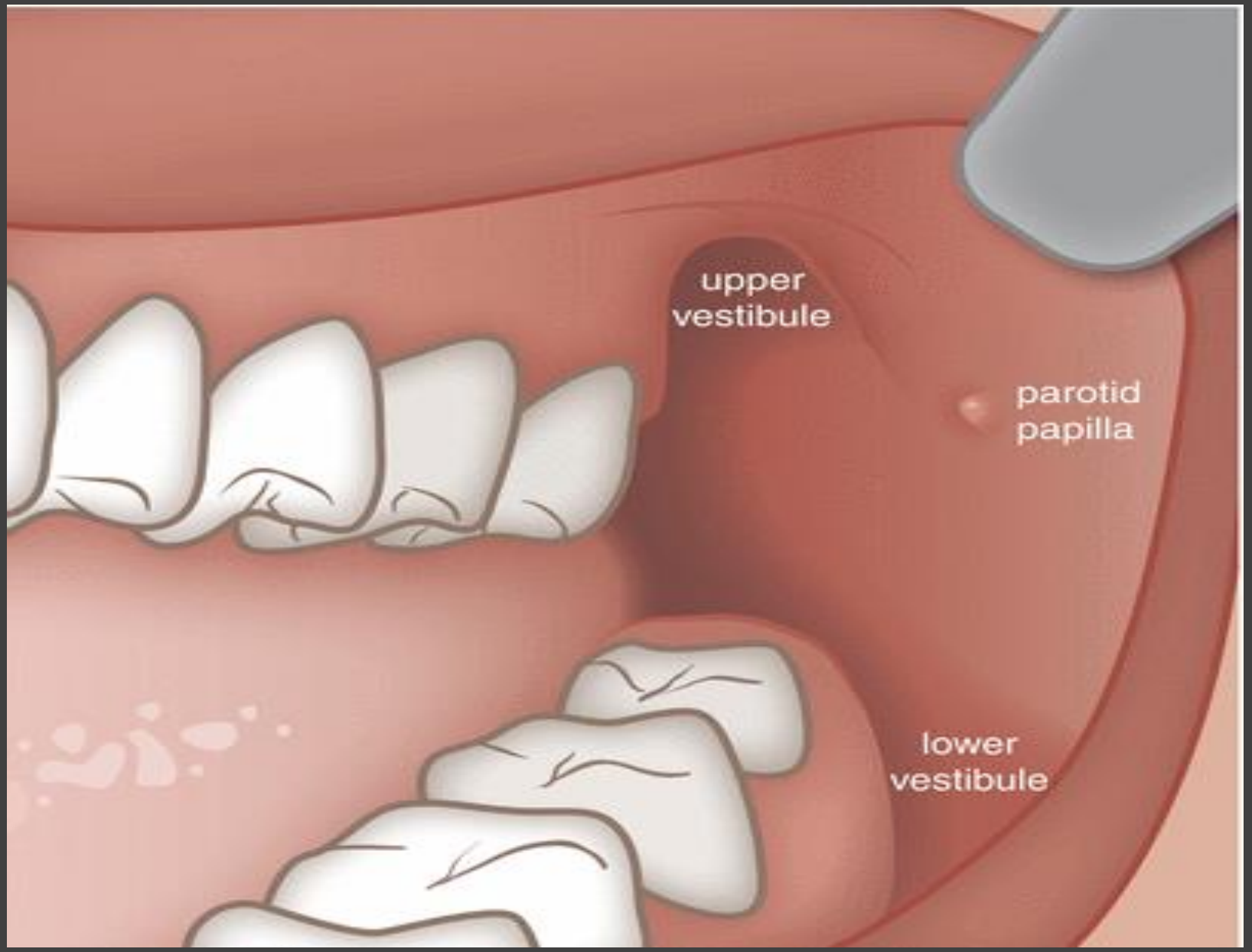

Upper lip (labium)
Frenulum of upper lip
Superior vestibule
Gingiva covering the maxillary alveolar process
Hard palate
Fauces
Soft palate
Uvula
Palatine tonsil
Cheek
Tongue
Molars
Frenulum of tongue
Openings of submandibular ducts
Premolars
Gingiva covering the mandibular alveolar process
Canine
Frenulum of lower lip
Incisors
Inferior vestibule
Lower lip (labium)


Oral cavity
Vestibule

Vestibule cont'd

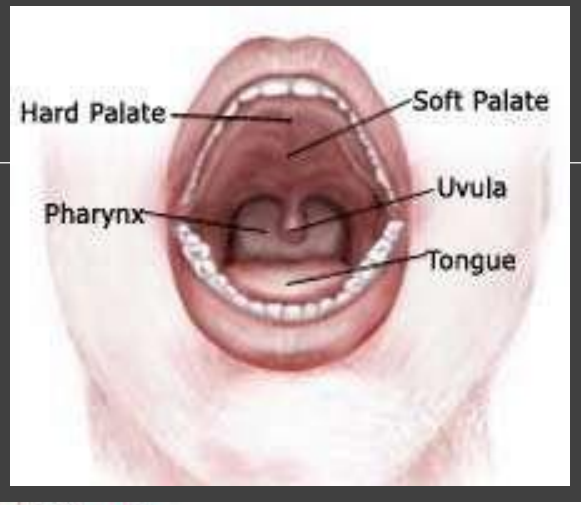
- The lateral wall of the vestibule is formed by the cheek
  - The cheek is composed of Buccinator muscle, covered laterally by the skin & medially by the mucous membrane
- A small papilla on the mucosa opposite the upper 2nd molar tooth marks the opening of the duct of the parotid gland

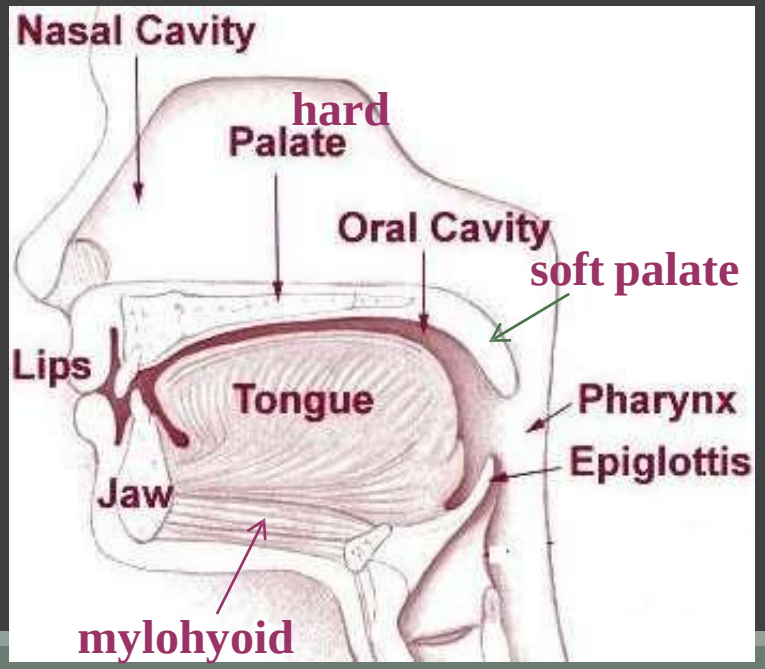



upper
vestibule
parotid
papilla
lower
vestibule

Oral Cavity Proper

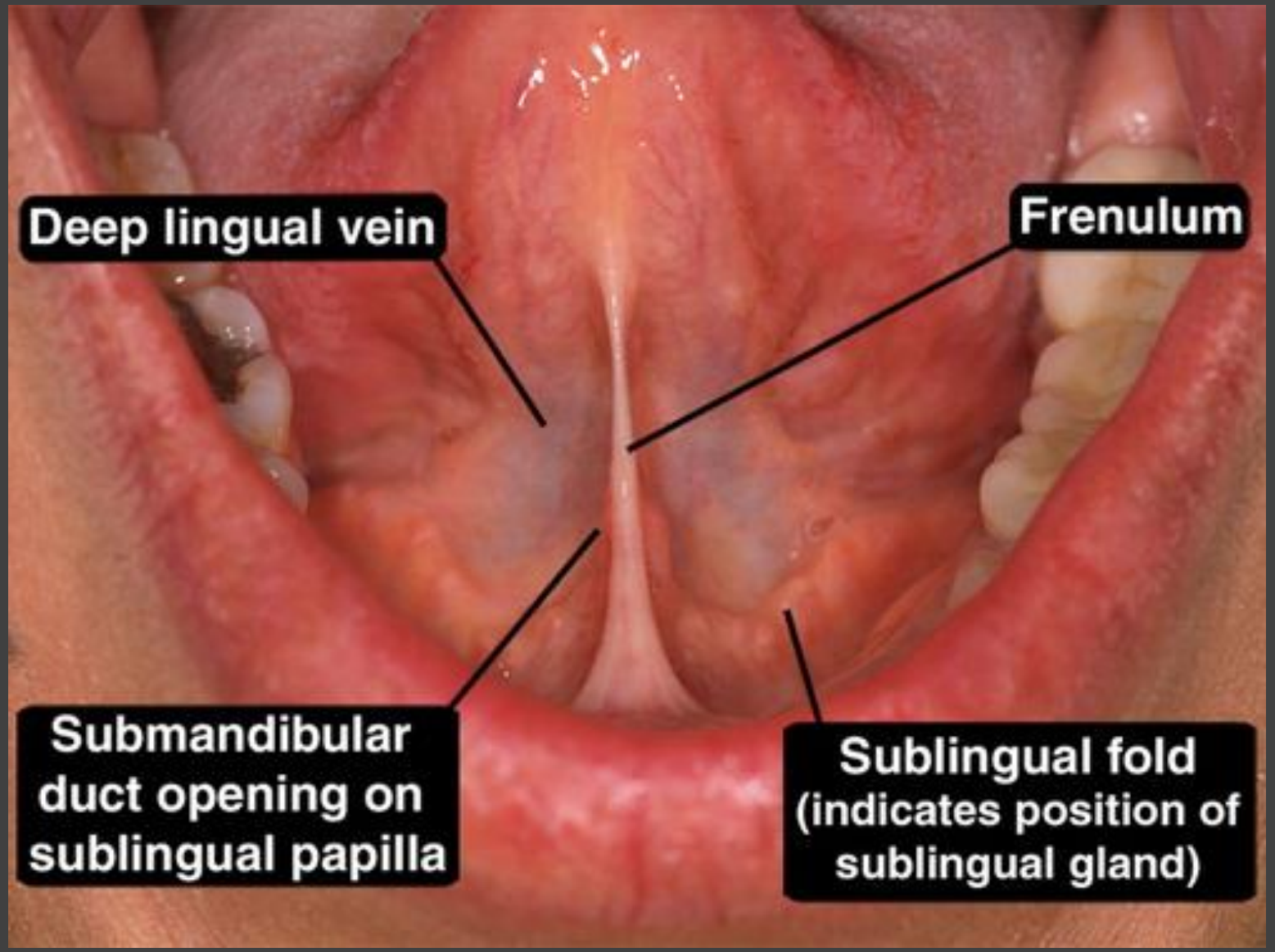
- It is the cavity within the alveolar margins of the maxillae and the mandible
  - Its Roof is formed by the hard palate anteriorly and the soft palate posteriorly
  - Its Floor is formed by the mylohyoid muscle. The anterior 2/3rd of the tongue lies on the floor.





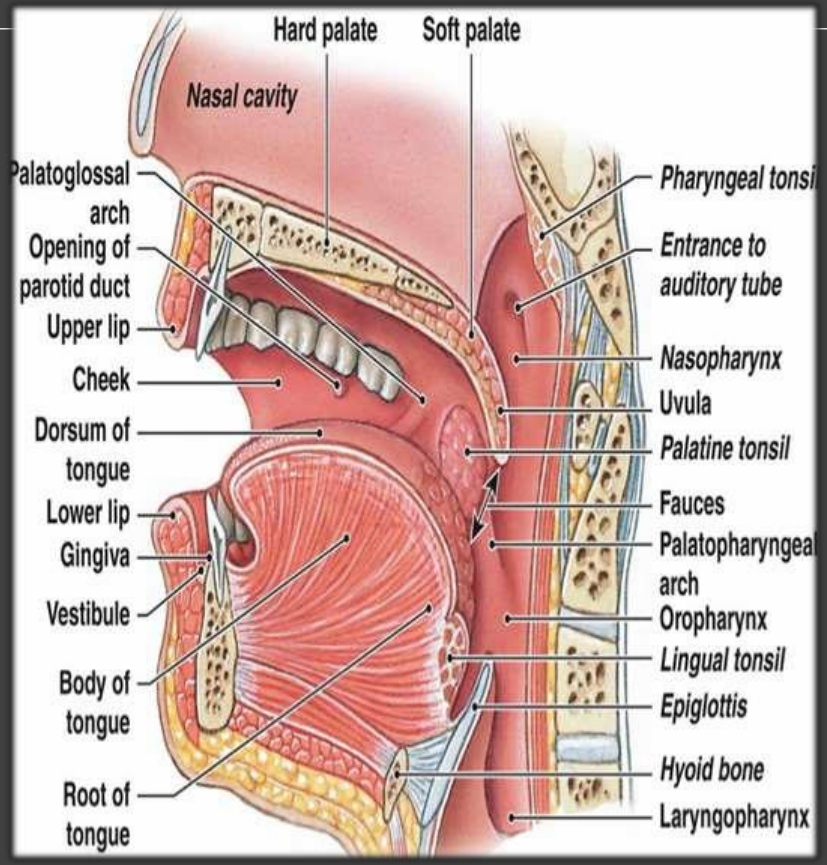
FLOOR OF MOUTH

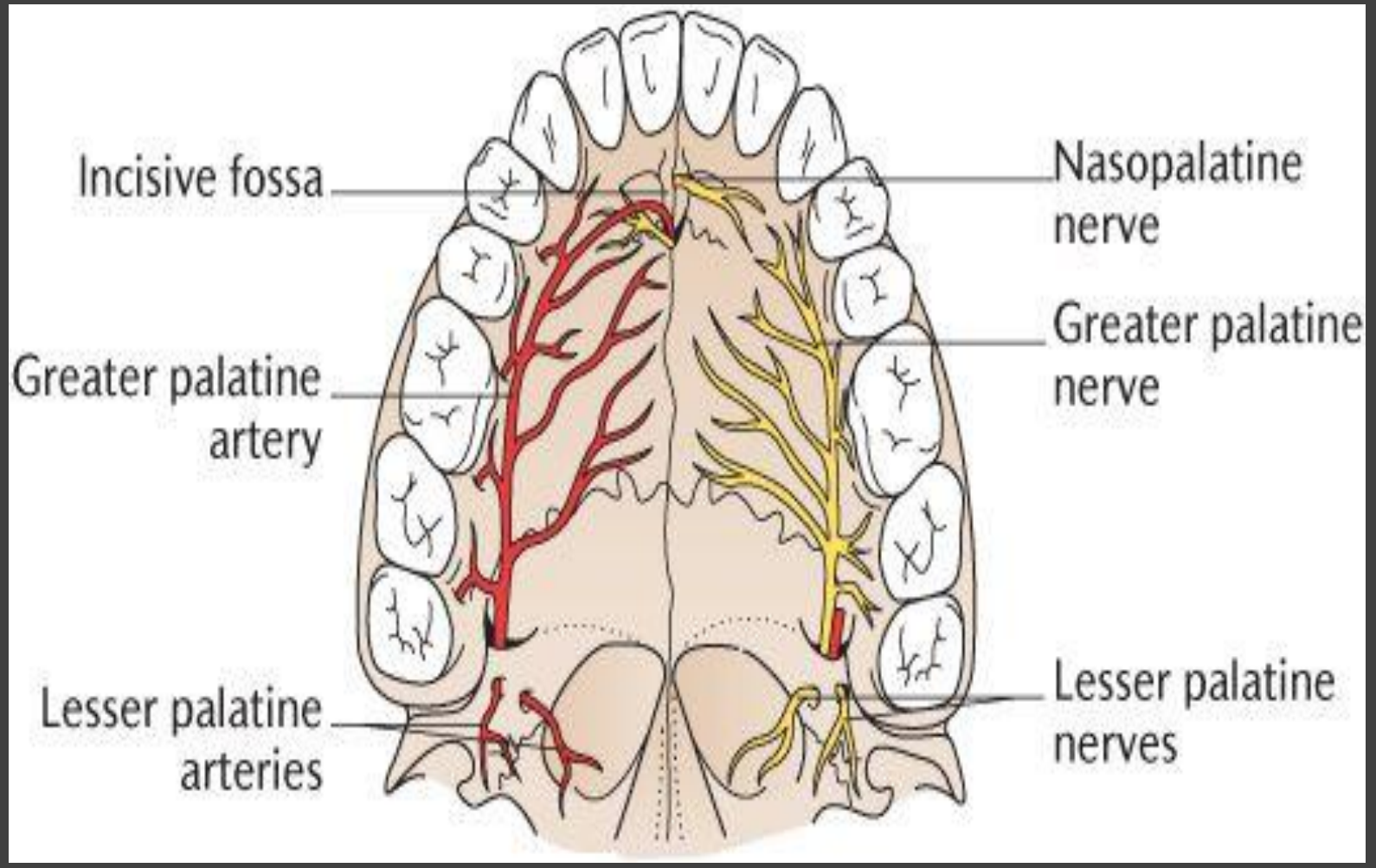
- Anterior 2/3 of tongue,frenulum
- Submandibular salivary gland duct
- Sublingual salivary gland forma a fold --- sublingual fold


Deep lingual vein
Frenulum
Submandibular duct opening on sublingual papilla
Sublingual fold (indicates position of sublingual gland)

Boundaries:

1. Anteriorly and laterally by the teeth and gums,
2. Superiorly by the palate (hard and soft),
3. Inferiorly by the tongue and the floor of the mouth, and
4. Posteriorly by the opening into the pharynx.




Incisive fossa
Greater palatine artery
Lesser palatine arteries
Nasopalatine nerve
Greater palatine nerve
Lesser palatine nerves

NERVE SUPPLY

Sensory innervation of the oral cavity is supplied by the branches of the **trigeminal nerve** (CN V).

- The hard palate is innervated by the **greater palatine** and **nasopalatine nerves**, both of which are branches of the maxillary nerve (CN V2). The soft palate is innervated by **lesser palatine** nerve, another branch of the maxillary nerve.
- The floor of the oral cavity receives sensory innervation from the **lingual nerve** – a branch of the mandibular (V3) division of the trigeminal nerve. The tongue is also innervated by special sensory fibres for taste from the **chorda tympani**, a branch of the facial nerve (CN VII).
- The cheeks are innervated by the **buccal nerve**. It is also a branch of the mandibular division of the trigeminal nerve *(not to be confused with the buccal branches of the facial nerve).*

KEY FACTS ABOUT THE ORAL CAVITY	
Definition	The first part of the digestive system that contains the structures necessary for mastication and speech; teeth, tongue and salivary glands.
Tongue	A muscular organ in the oral cavity that enables taste sensation, chewing, swallowing and speaking.
Muscles of the tongue	Intrinsic: Superior longitudinal, inferior longitudinal, transverse and vertical muscles Extrinsic: Genioglossus, hyoglossus, styloglossus and palatoglossus muscles
Innervation of the tongue	Motor: All muscles are innervated by hypoglossal nerve (CN XII), except for palatoglossus which is supplied by vagus nerve (CN X). Sensory: - General and taste sensation from the posterior third: glossopharyngeal nerve (CN IX); - General sensation from the anterior two-thirds: lingual nerve (branch of the mandibular nerve - V3); - Taste sensation from the posterior two-thirds: facial nerve (CN VII)

INTRODUCTION

Salivary glands:

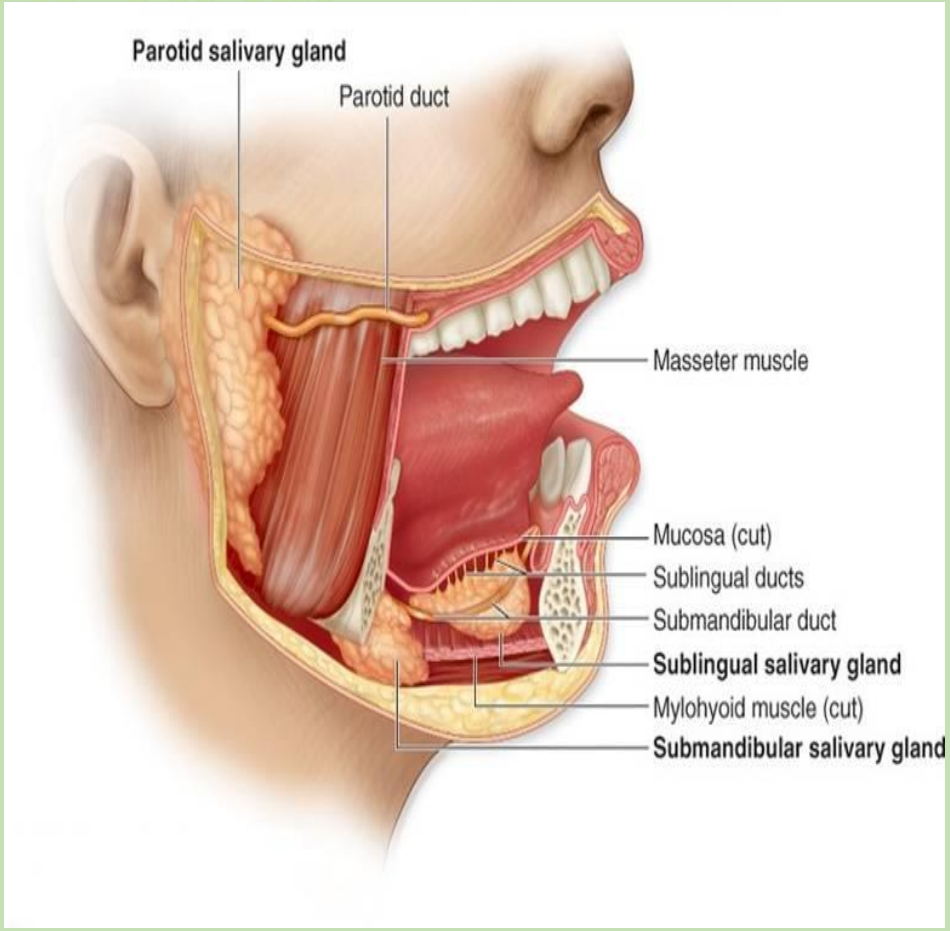
are composed of 4 major glands, in addition to minor glands.

Major:

- 2 parotid glands.
- 2subman dibular gland

Minor:

- Sublingual.
- Multiple minor glands



➢ The salivary glands

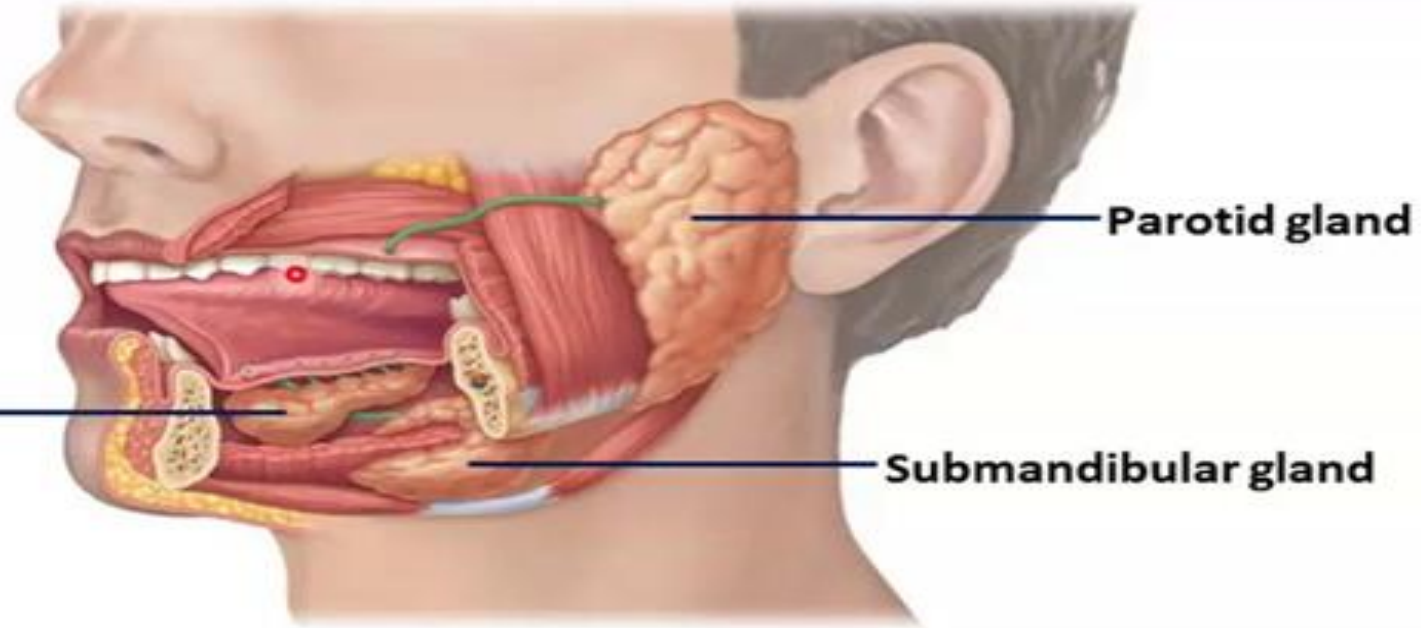
Parotid

- The largest salivary gland.
- At outer surface of mandible, in front of the ear.
- Its duct opens in the vestibule of the mouth opposite the 2nd upper molar tooth.

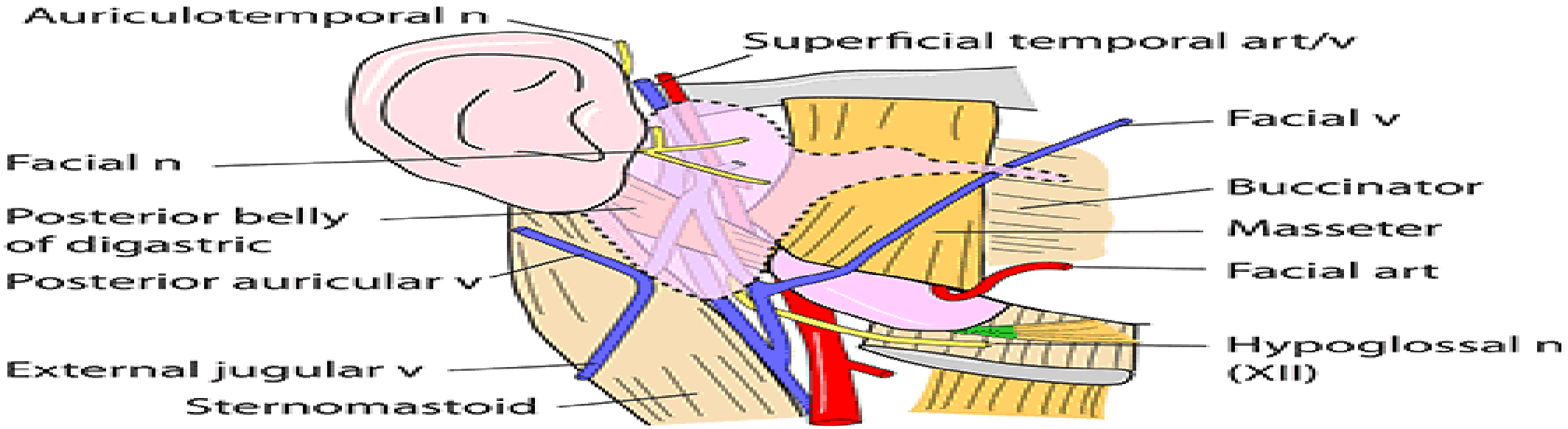
Submandibular

- Deep to the mandible.
- Its duct opens in the floor of mouth (on either side of frenulum of tongue)

Sublingual



PAROTID GLAND 1



Lies between mastoid, styloid process, ramus of mandible.
Surrounded by parotid fascia (investing layer of deep fascia)

- Serous secretions
- Produces amylase, water, Ig factors (lubicates & oral hygiene)
- Has an upper & lower pole, lateral, anterior & deep surface

RELATIONS:

Posterior
- Sternocleidomastoid
- Mastoid process

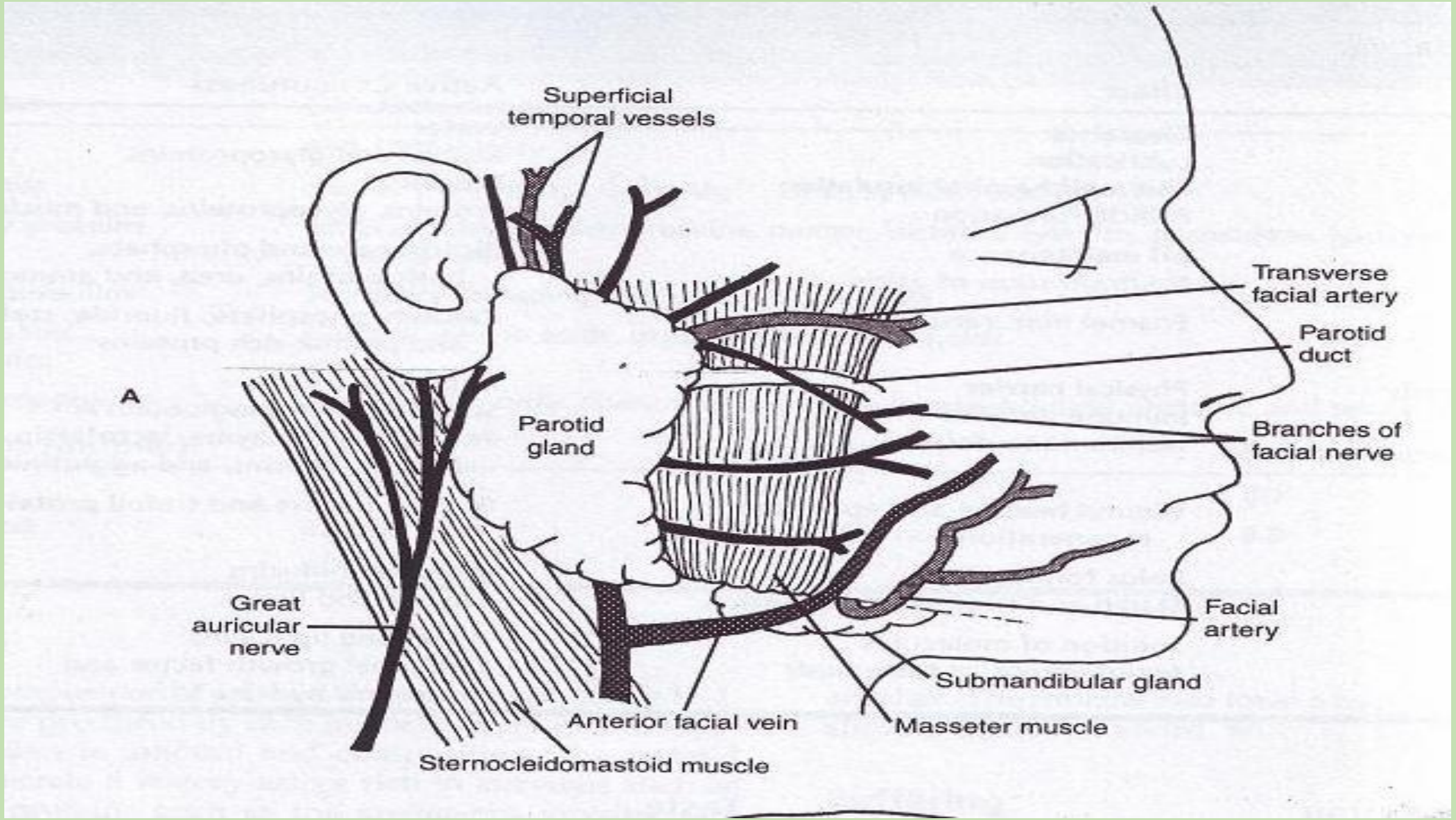
Above
- External acoustic meatus
- Temporomandibular joint

Anterior
- Angle of mandible
- Medial pterygoid plate
- Masseter
- Stylomandibular ligament

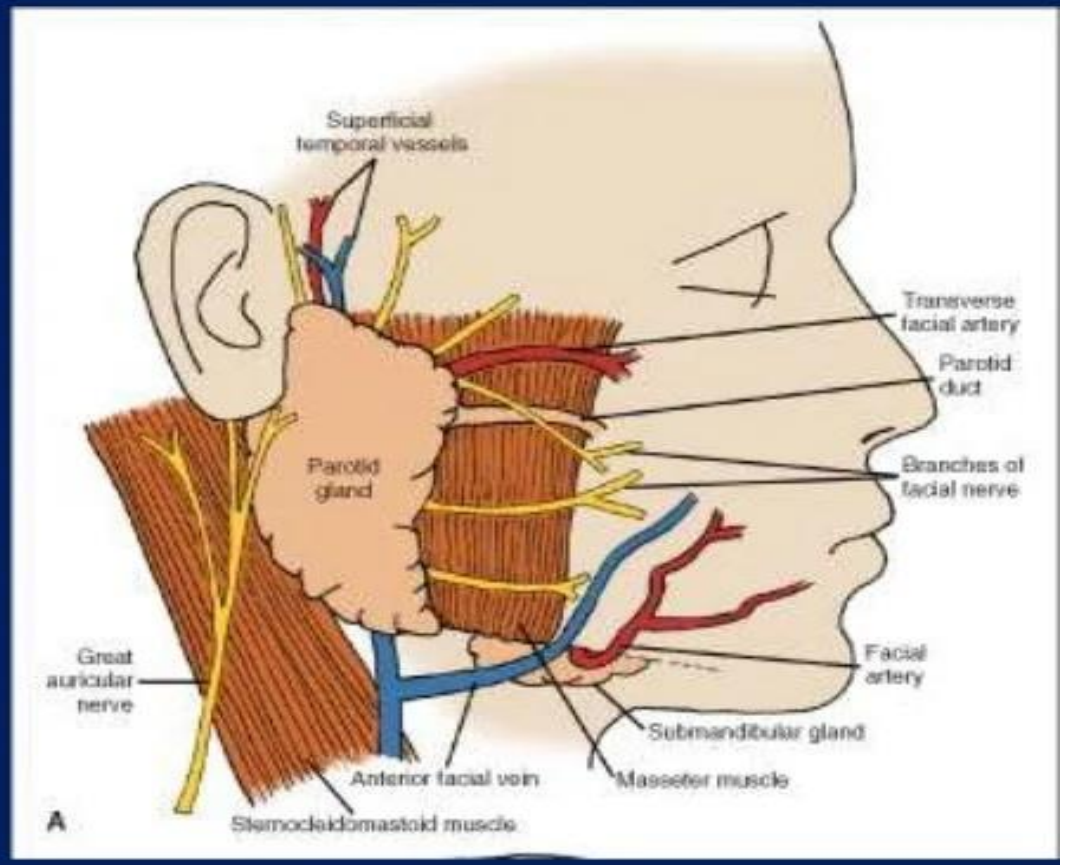
In gland: Facial nerve, retromandibular vein, external carotid artery, lymph nodes, fibres of auriculotemporal nerve

Deep to gland: Mastoid process, sterno-mastoid, posterior belly of digastric, styloid process, stylohyoid ligament & muscle, styloglossus, stylopharyngeus, tempormandibular joint

Lateral: subcutaneous surface

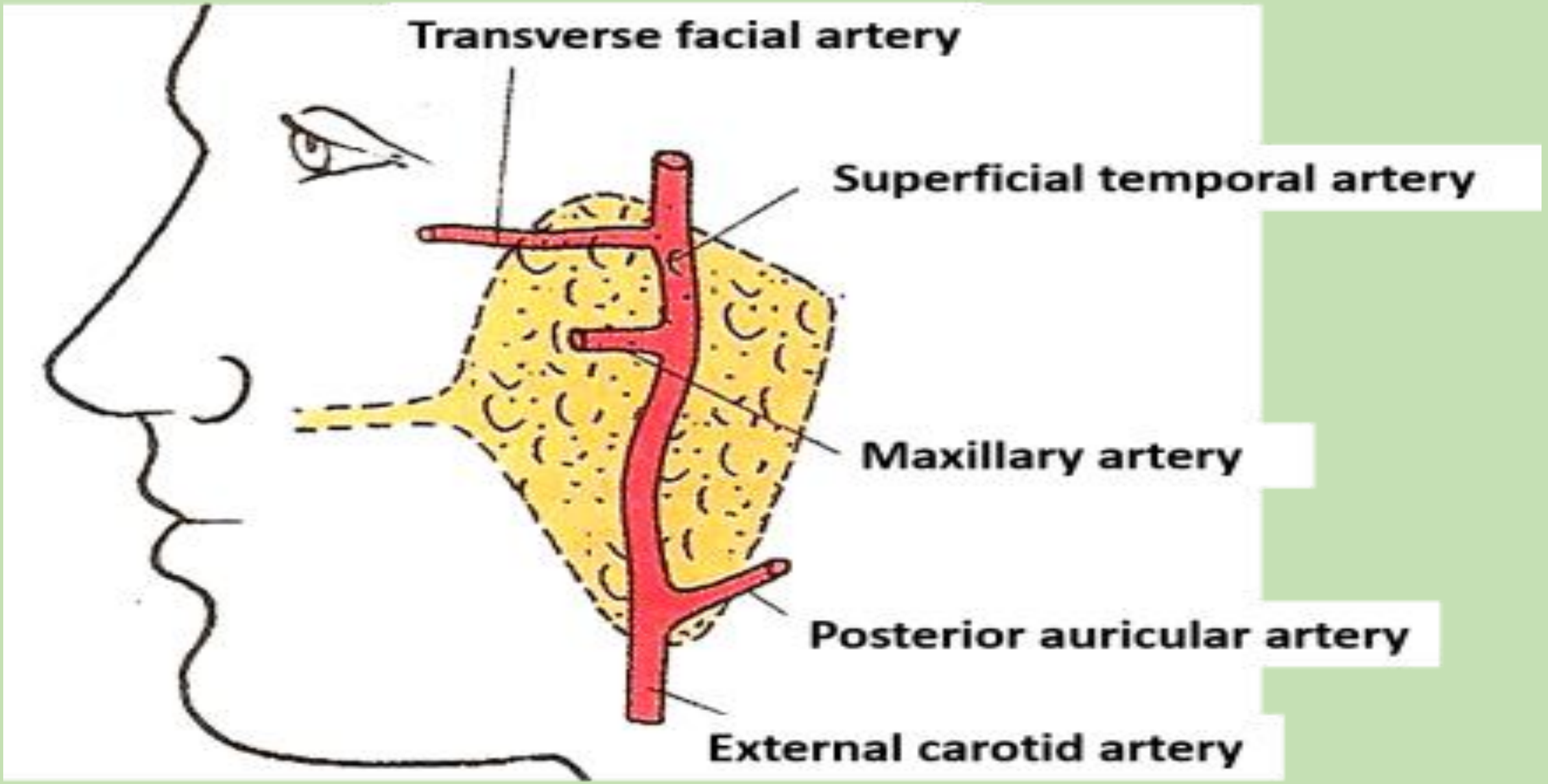

Superficial temporal vessels
Transverse facial artery
Parotid duct
A
Parotid gland
Branches of facial nerve
Great auricular nerve
Facial artery
Submandibular gland
Anterior facial vein
Masseter muscle
Sternocleidomastoid muscle

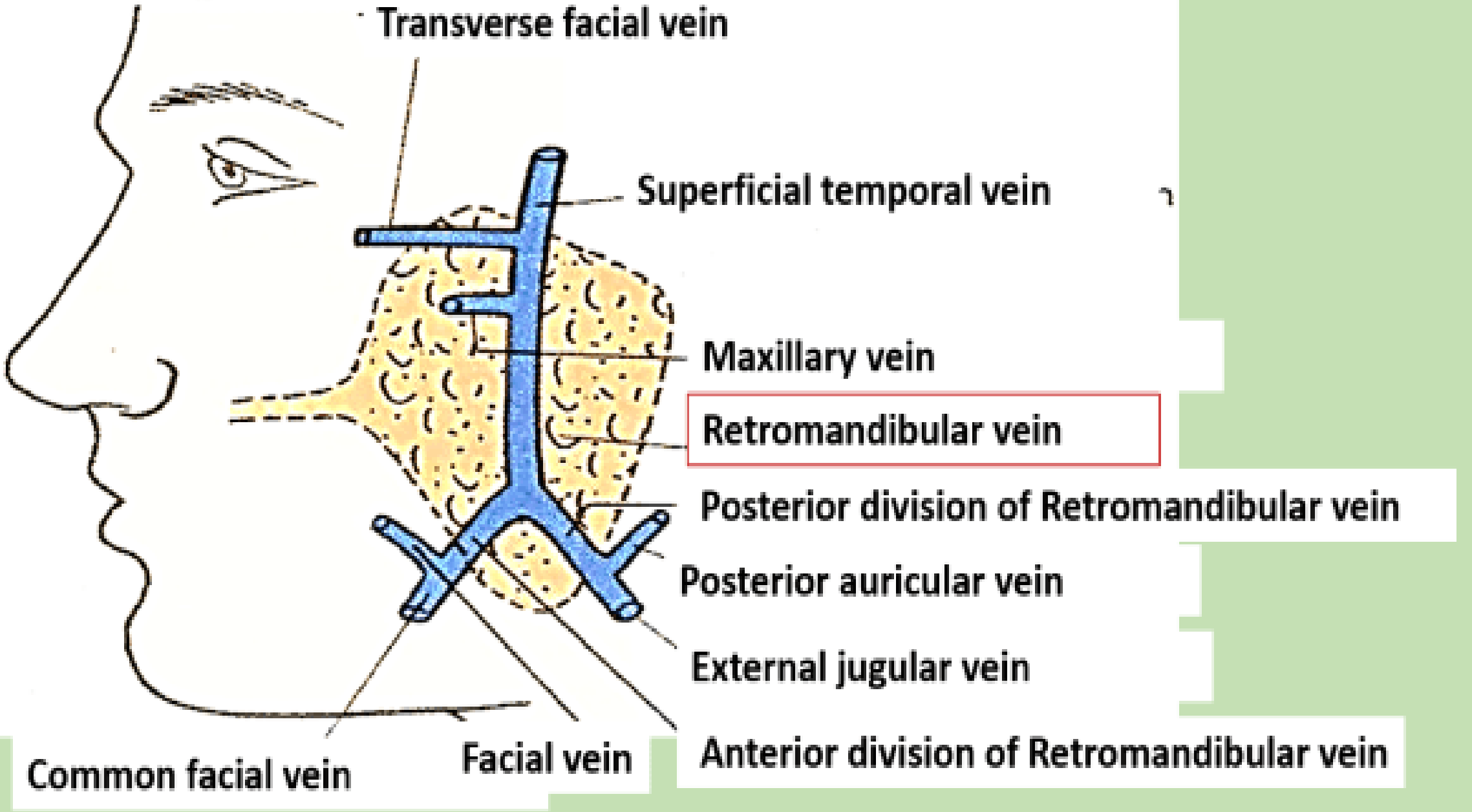
- **Arteries**: External carotid artery, maxillary artery, superficial temporal, posterior auricular artery
- **Veins**: retromandibular vein is formed within the gland by union of superficial temporal and maxillary vein.
- **Nerves** : **facial nerve** enters the gland and divides in to terminal branches within the gland.



- **BLOOD SUPPLY:**
- **Blood supply is by external carotid artery and veins drain in to external jugular vein.**

- **LYMPHATIC DRAINAGE:**
- **Lymph drains in to parotid nodes and from there to upper deep cervical lymph nodes.**


Transverse facial artery
Superficial temporal artery
Maxillary artery
Posterior auricular artery
External carotid artery


Transverse facial vein
Superficial temporal vein
Maxillary vein
Retromandibular vein
Posterior division of Retromandibular vein
Posterior auricular vein
External jugular vein
Anterior division of Retromandibular vein
Common facial vein
Facial vein

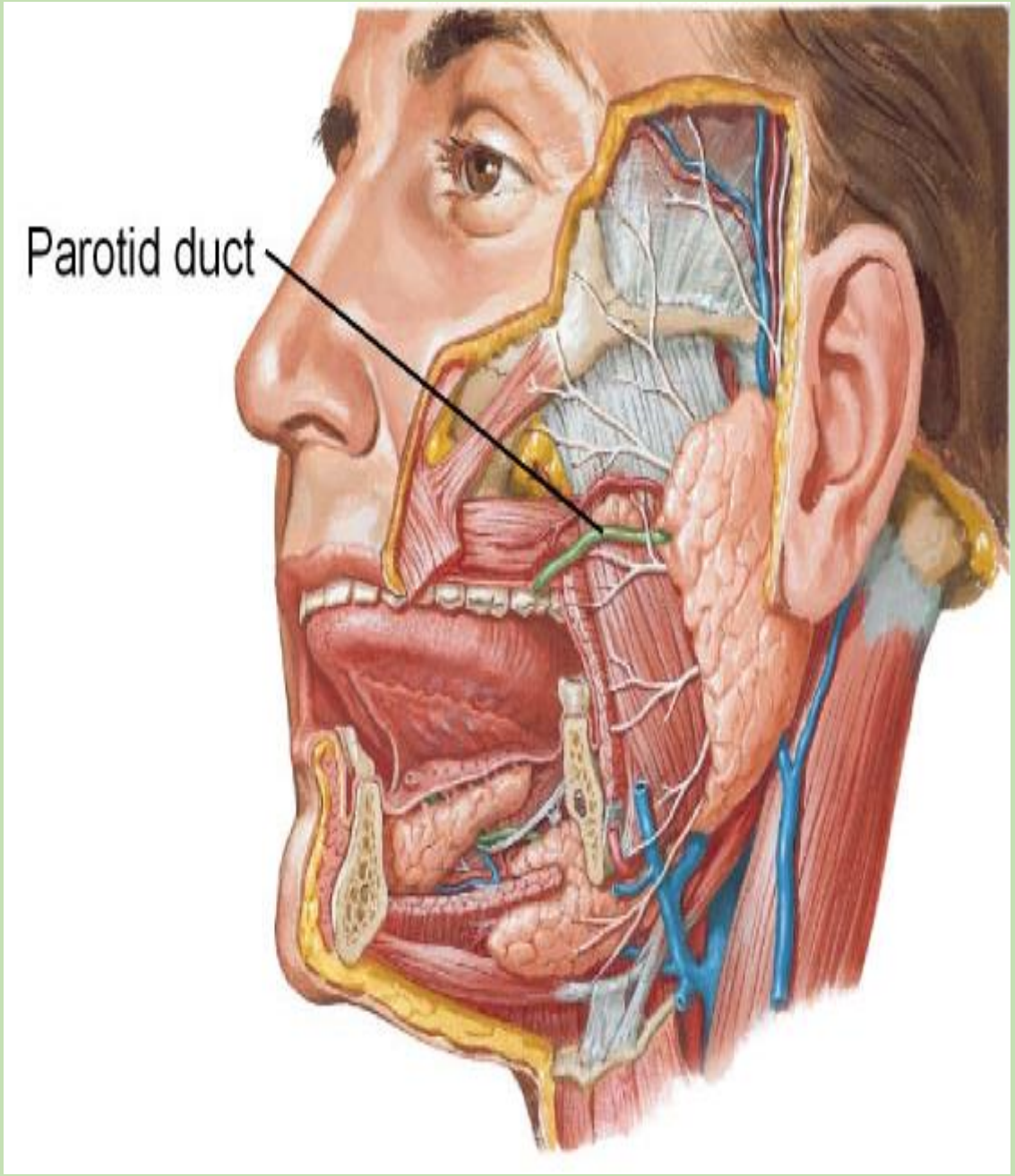
Important structure that run through the parotid gland:

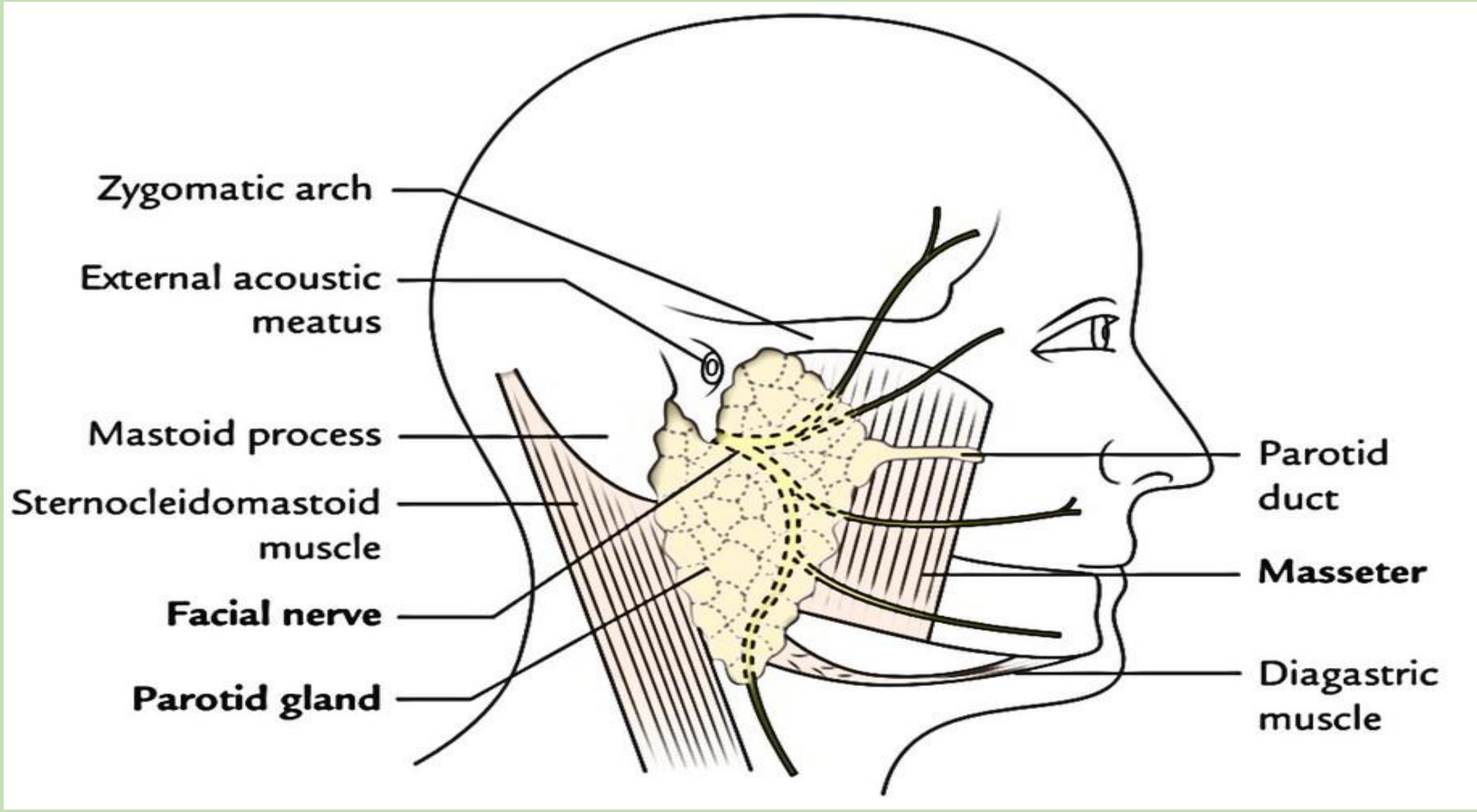
1. Branch of facial nerve.
2. Terminal branch of external carotid artery that divided into maxillary & superficial temporal artery.
3. The retromandibular vein (post. Facial).
4. Intraparotid lymph node.

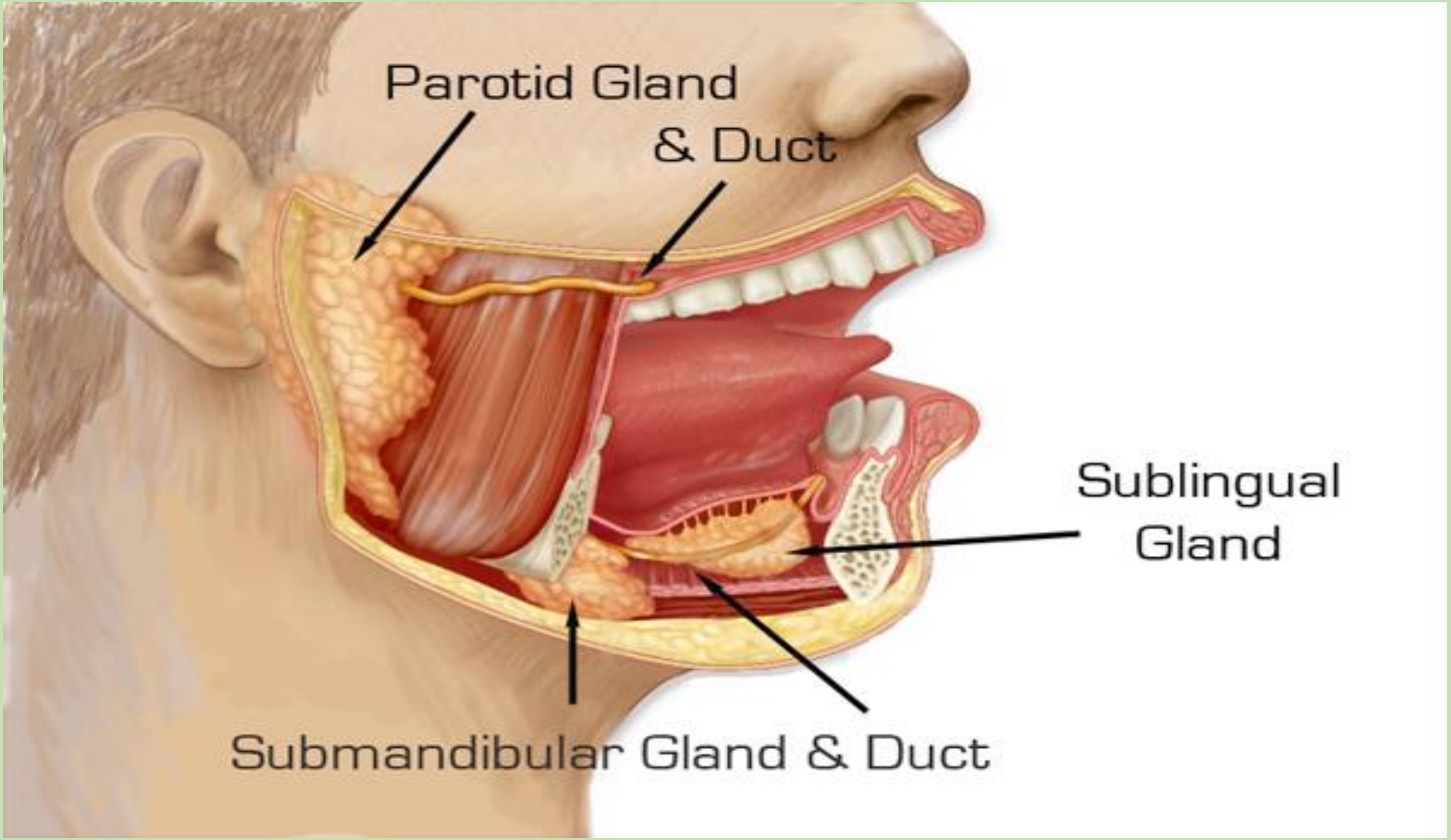
THE PAROTID DUCT

Stensen's duct is 5 cm long.

- open opposite the **second upper molar tooth**




Zygomatic arch
External acoustic meatus
Mastoid process
Sternocleidomastoid muscle
Facial nerve
Parotid gland
Parotid duct
Masseter
Diagastric muscle


Parotid Gland
& Duct
Sublingual
Gland
Submandibular Gland & Duct

Secretomotor fibres from inferior salivary nucleus supply:

A. Lacrimal gland
B. Parotid gland
C. Submandibular salivary gland
D. Sublingual salivary gland

2. SUBMANDIBULAR GLAND

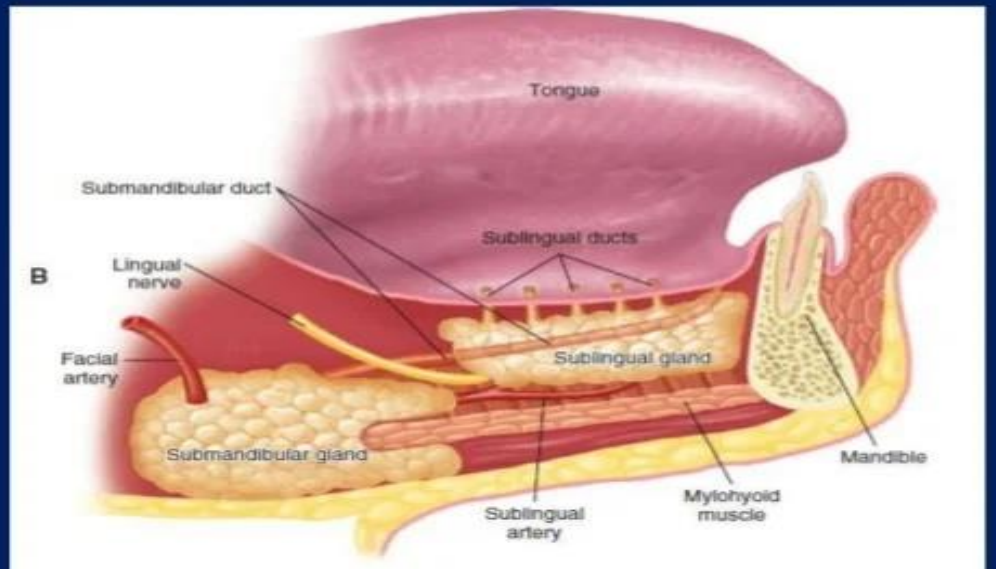
- It’s paired of gland that lie below the mandible on either side.
- Has 2 lobes, superficial & deep by mylohyoid muscle.
- **Warthon’s duct**, drained submandibular gland that opens into anterior floor of mouth on either side of frenulum of tongue

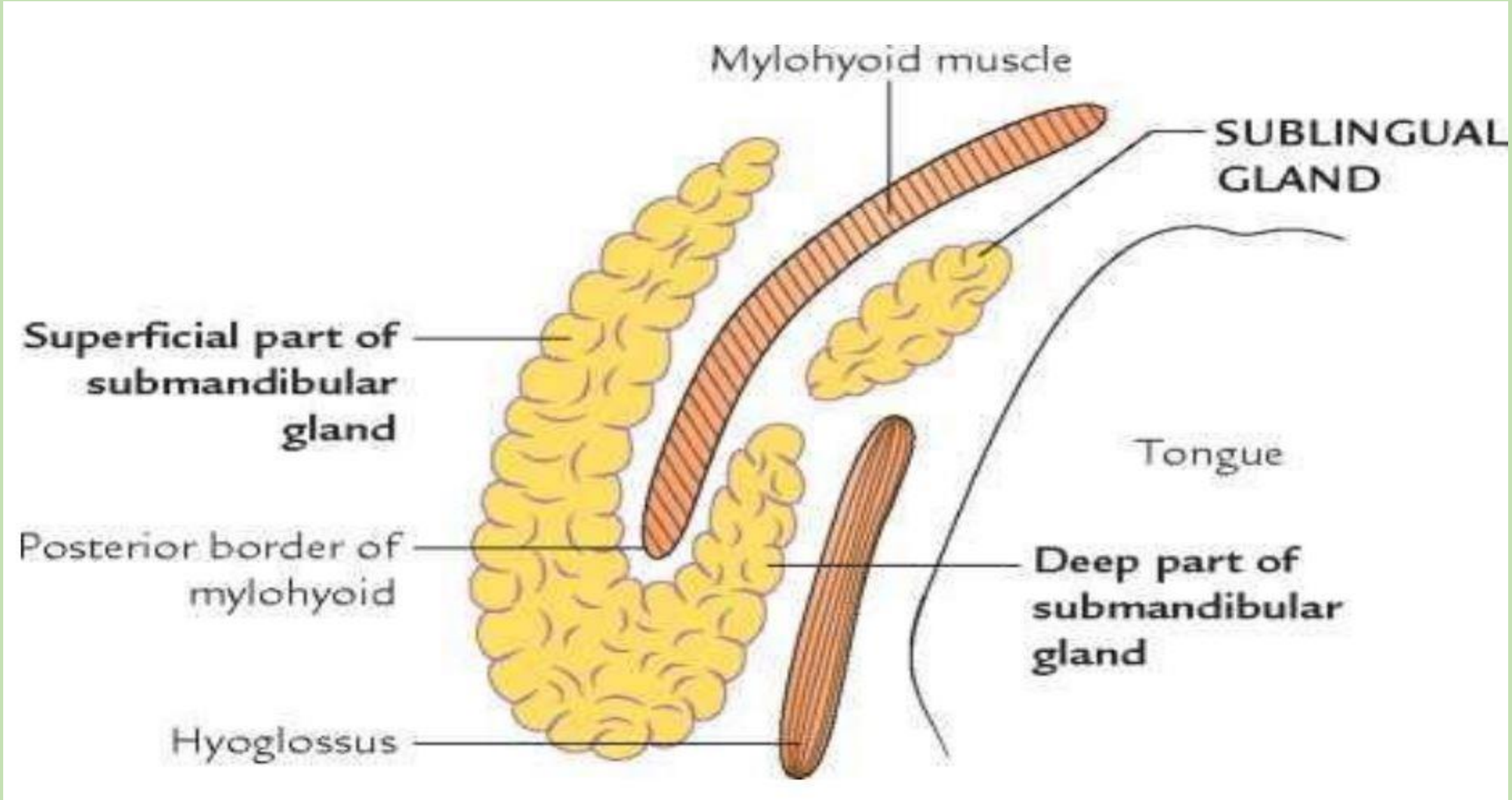
Anatomical relationship:

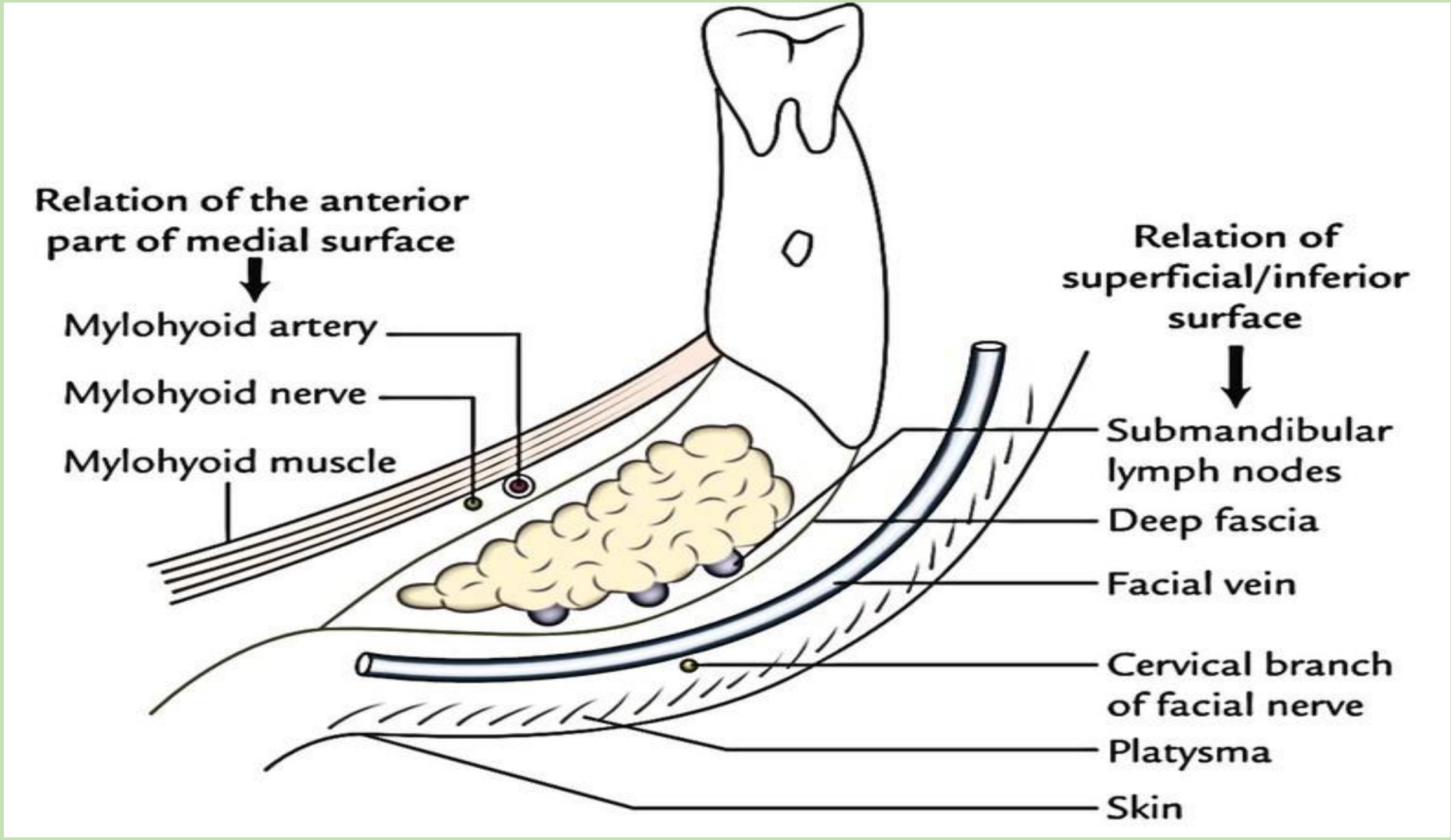
1. Lingual nerve.
2. Hypoglossal nerve.
3. Anterior facial vein.
4. Facial artery.
5. Marginal mandibular branch of facial nerve.

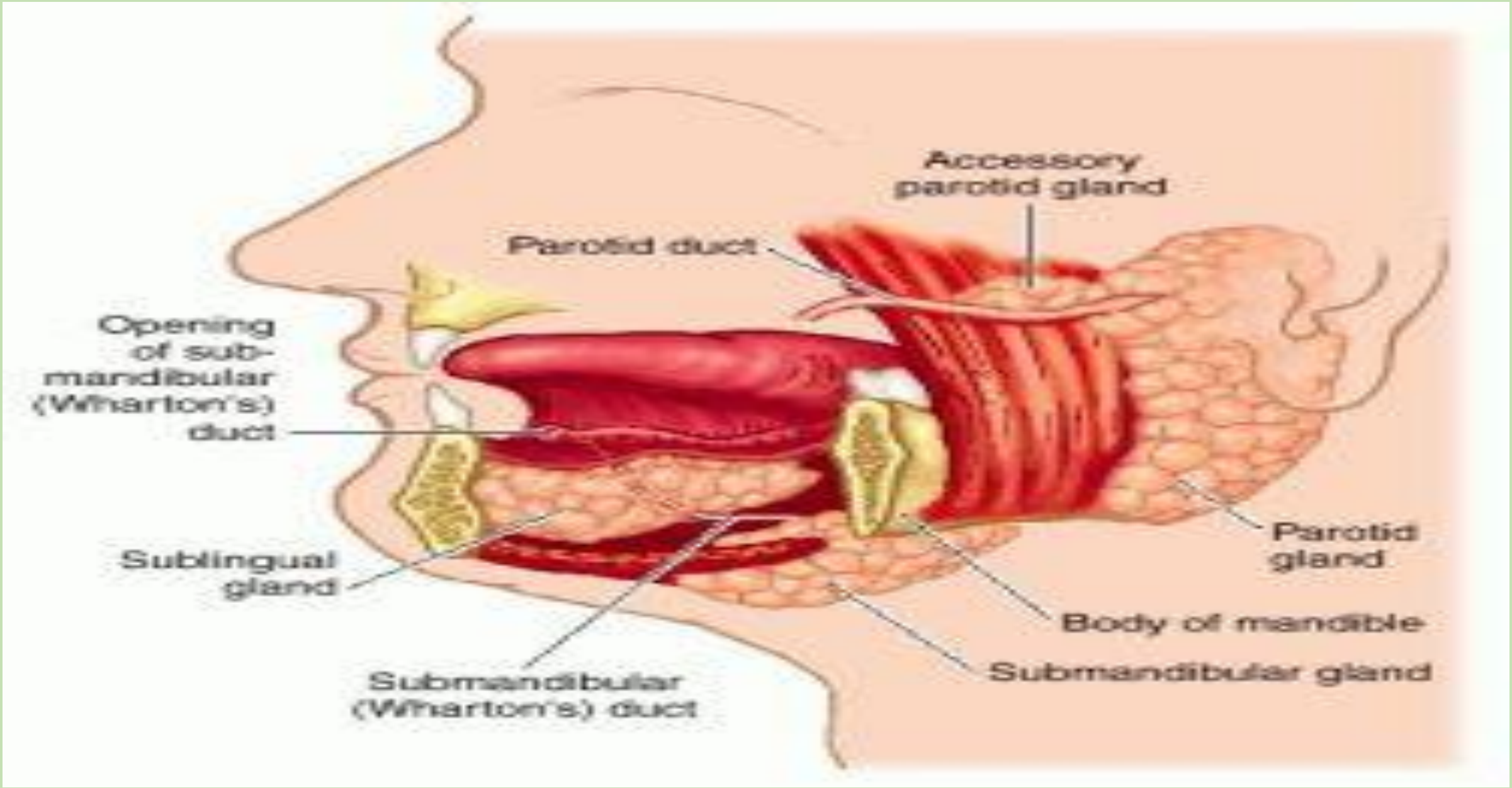
SUBMANDIBULAR GLAND

- **Second largest salivary gland. also called submaxillary salivary gland.**
- **It is mixed type of gland with both serous and mucous units but serous units predominate.**
- **Superficial part: this part of gland fills diagastric triangle.**
- **Deep part: It is deep to mylohyoid and superficial to hyoglossus and styloglossus.**




Mylohyoid muscle
SUBLINGUAL GLAND
Superficial part of submandibular gland
Tongue
Posterior border of mylohyoid
Deep part of submandibular gland
Hyoglossus

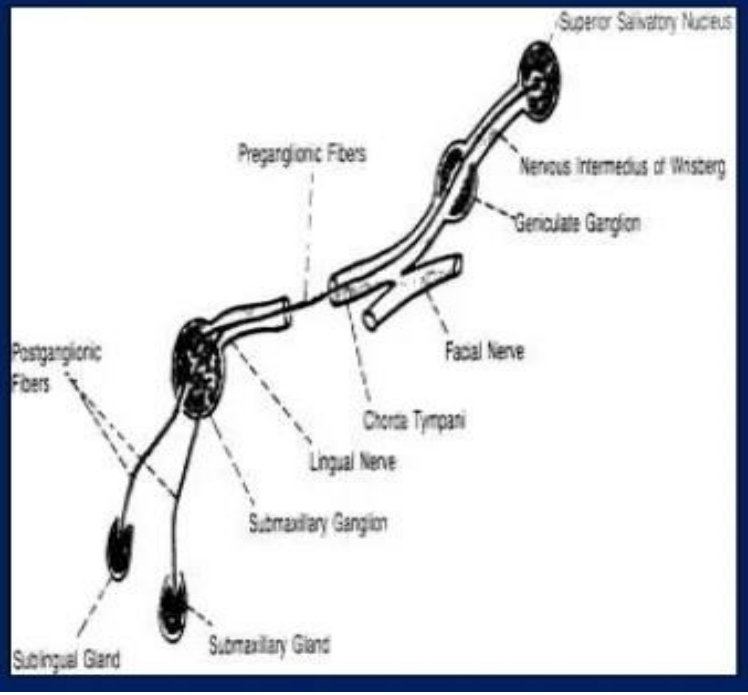

Relation of the anterior part of medial surface
Mylohyoid artery
Mylohyoid nerve
Mylohyoid muscle
Relation of superficial/inferior surface
Submandibular lymph nodes
Deep fascia
Facial vein
Cervical branch of facial nerve
Platysma
Skin


Accessory parotid gland
Parotid duct
Opening of sub-mandibular (Wharton's) duct
Sublingual gland
Parotid gland
Body of mandible
Submandibular gland
Submandibular (Wharton's) duct

- **Blood supply:**
- **It is supplied by facial artery. Veins drain in to common facial or lingual vein.**
- **Lymphatic drainage:**
- **Deep cervical and jugular group of nodes.**

Nerve supply

- The secretomotor pathway begins near **superior salivatory nucleus**. **Preganglionic fibers** pass through the sensory root of facial nerve, the **geniculate ganglion**, the chordatympani and the lingual nerve to reach **submandibular ganglion**. **Postganglionic fibers** emerge from the ganglion and enter submandibular gland.

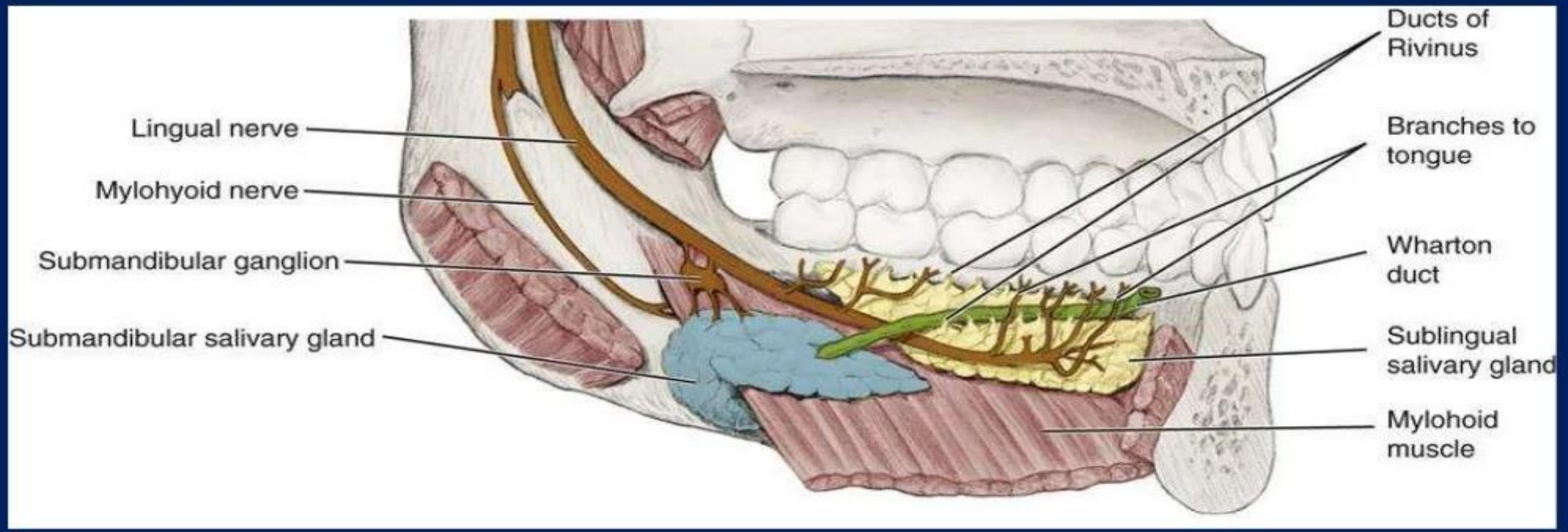


3. SUBLINGUAL GLAND

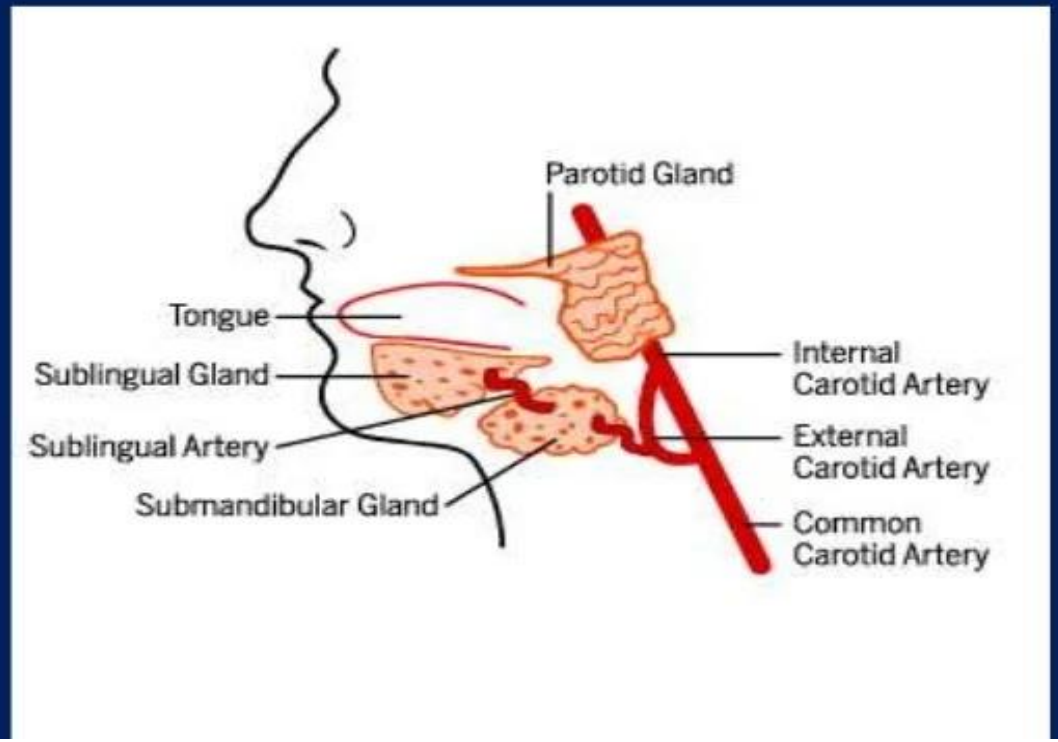
- Lie on the superior surface of the mylohyoid muscle and are separated from the oral cavity by a thin layer of mucosa.

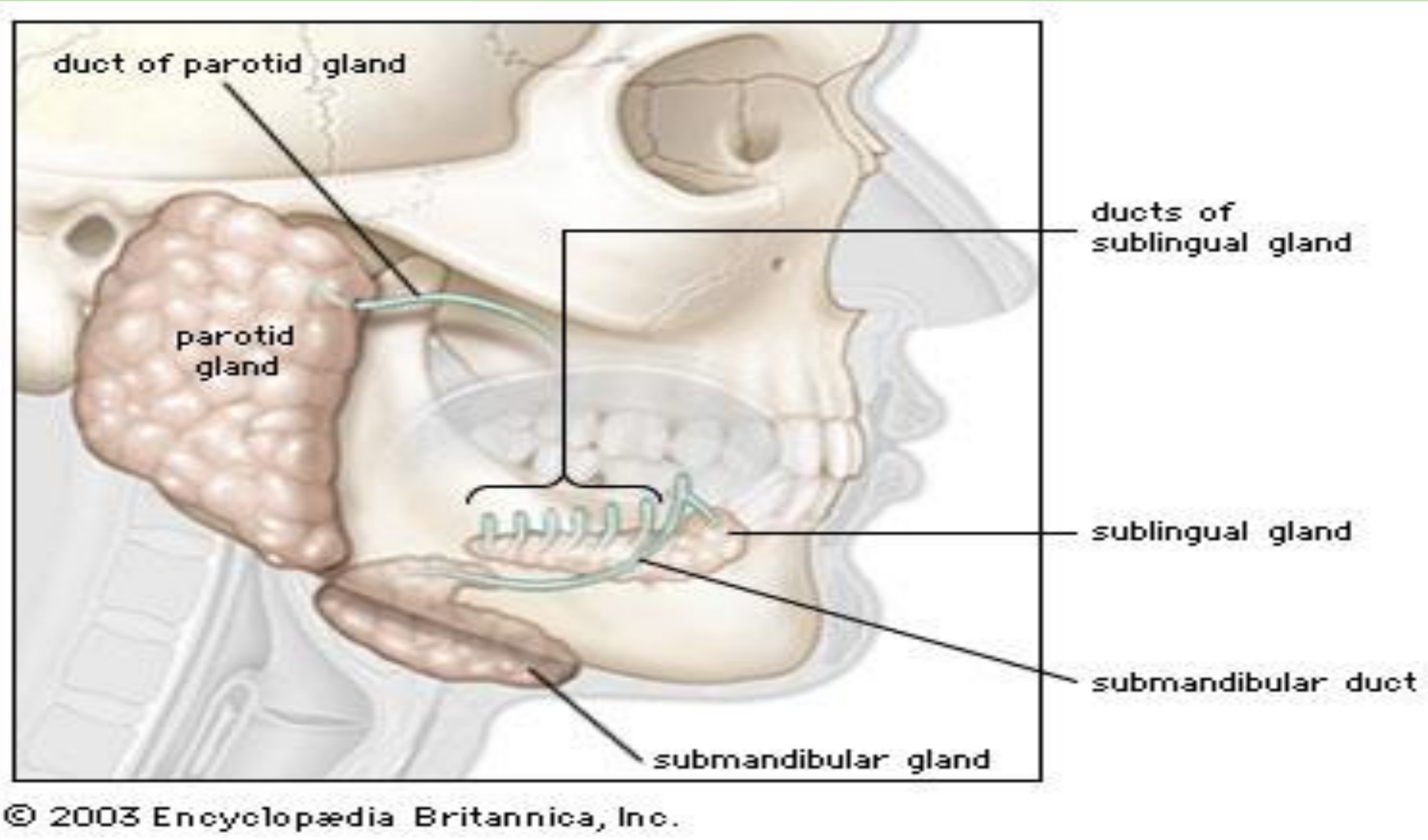
- The ducts of the sublingual glands are called **Bartholin's ducts**.

- **Sublingual duct**
- **It opens near submandibular duct.**
- **Several small ducts, ducts of Rivinus open independently along sublingual fold.**



- **Blood supply:**
- **Sublingual and submental arteries.**
- **Lymphatic drainage:**
- **Submandibular lymph nodes.**




duct of parotid gland
parotid gland
ducts of sublingual gland
sublingual gland
submandibular duct
submandibular gland
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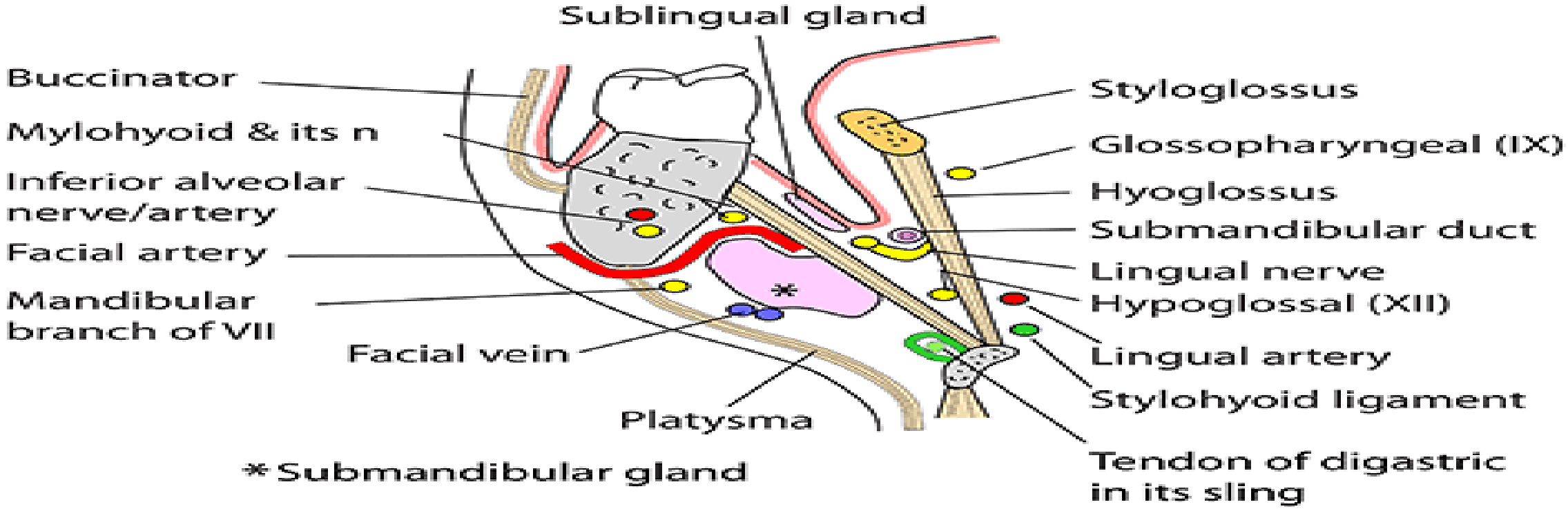
SUBLINGUAL GLAND

- Mucous gland
- Between mylohyoid and genioglossus
- 15 ducts – 1/2 into submandibular duct
  1/2 into sublingual fold
- **Nerve supply:** secretomotor via submandibular ganglion
  general sensation via lingual (Vc)
- **Blood supply:** lingual artery & branches of submental artery
- **Develops:** from a groove in floor of mouth that becomes a tunnel.
  Blind end proliferates (ectodermal) to give secreting acini
- **(Note: all salivary glands develop from epithelial lining of mouth)**



4. MINOR SALIVARY GLAND

- About 450 lie under the mucosa
- They are distirbuted in the mucosa of the lips, cheeks, palate, floor of mouth & retromolar area
- Also appear in oropharyanx, larynx & trachea

DISORDERS OF MINOR & SUBLINGUAL SALIVARY GLAND

CYST

It's either:

•Extravasation cyst result from trauma to overlying mucosa.

•Mucous retention cyst in the floor of the mouth due to obstruction.

•**RANULA** extravasation cyst that arises from sublingual gland.

TUMORS

- Tumors of minor & sublingual salivary gland are extremely rare.
- 90% are malignant.
- Most common site: upper lip, palate & retromolar region.

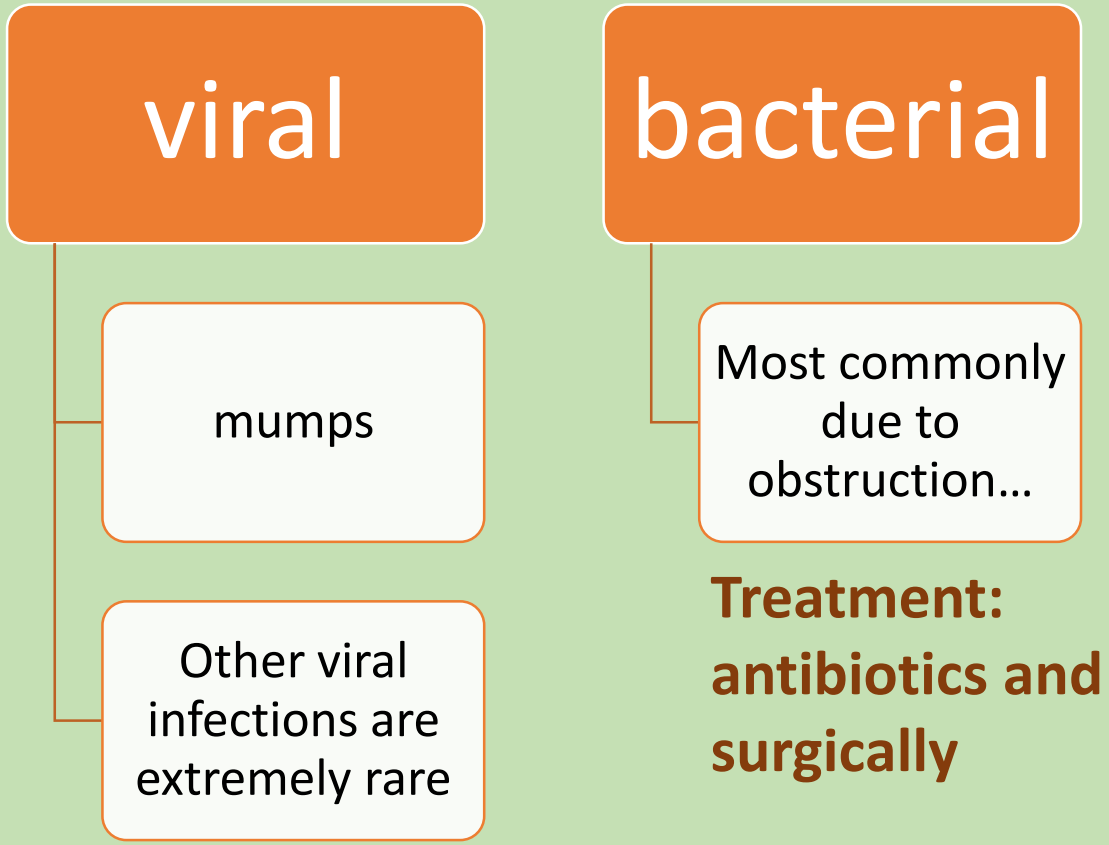
SUBMANDIBULAR GLAND

2- INFLAMMATORY DISEASES OF THE SUBMANDIBULAR GLAND

SIALADENITIS

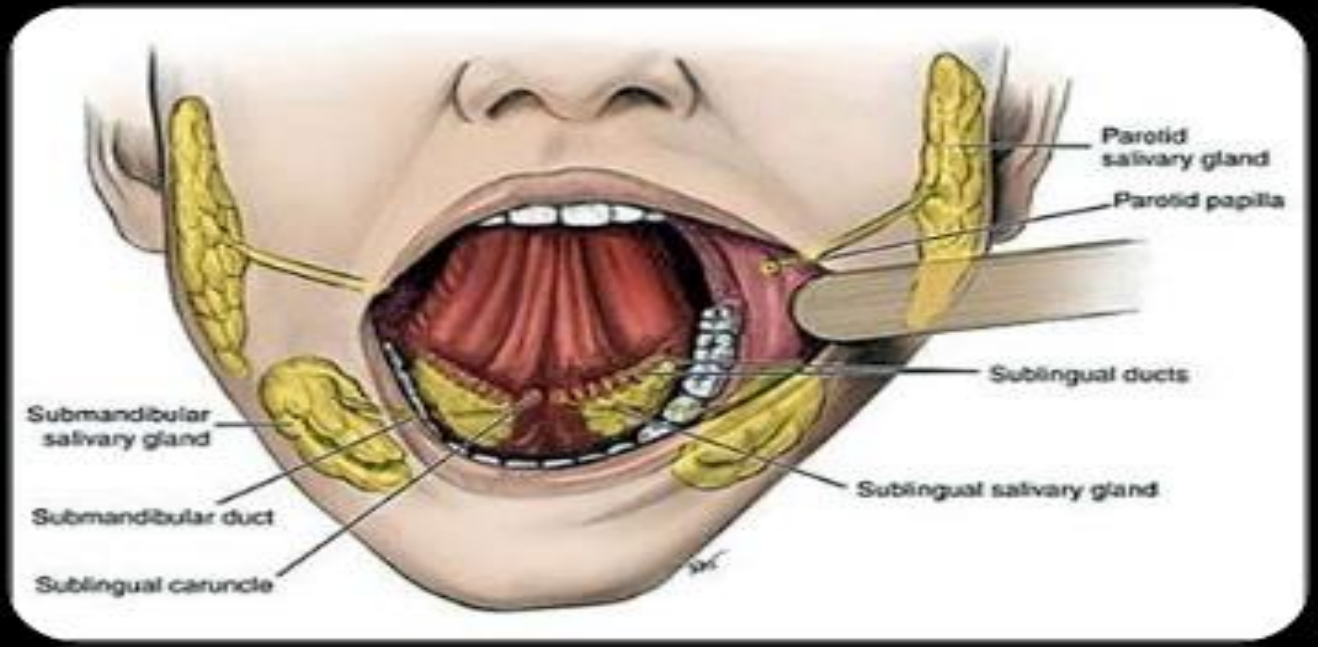
- Acute
- chronic
- Acute on chronic

ACUTE INFECTIONS



3-TRAUMA AND OBSTRUCTION

- Most common cause is sialolithiasis which 80% happens in the submandibular gland…
- Presentation: painful swelling in submandibular area
- What would aggreveate it?
- Clinical findings: tender, pus draining
- investigations : x-ray
- Treatment: surgical



SIALOLITHIASIS

Dr ARJUN SHENOY
PG STUDENT
DEPT OF OMFS

Slowly painless growing temor below the ear, or infront of it

Sometimes on the upper aspect of the neck:

Bacterial sialadenitis

- **Clinical picture:**

  - Sudden onset
  - Gland is painful
  - Indurated
  - Erythematous overlying skin
  - It raises the lobule of the ear
  - Temp: above 37.8'C.

A- SJOGRAN'S SYNDROME:

- It is an autoimmune condition causing progressive destruction of the salivary glands and the lacrimal glands…..
- Presentation is xerostomia and keratoconjunctivitis…
- They also present with pain and asendng infection
- .females more than males 10:1
- Parotis is more common

B-XEROSTOMIA:

- Normal salivary flow decreases with age…
- Mostly in woman postmenopausal complaining of burning tongue of mouth..
- Causes: -chronic anxiety and depression..
  -dehydration…
  -anticholinergic drugs…
  -sjogran’s syndrome…
  -radiotherapy of the neck and head

XEROSTOMIA

MUMPS

THANK YOU