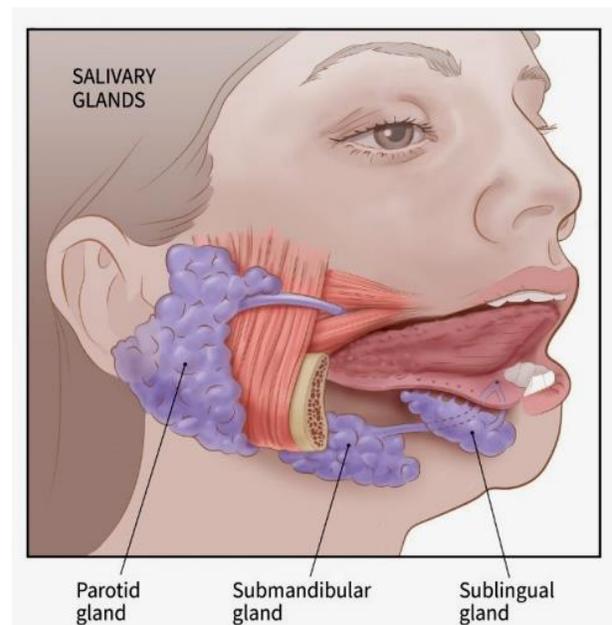
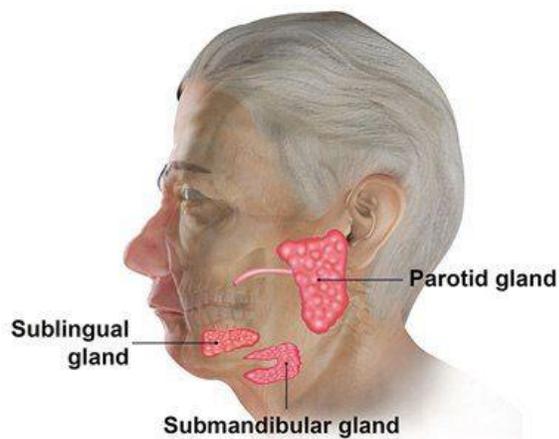


The Salivary Glands_ part I

Introduction

The salivary glands system is composed of three pairs of large paired aggregations of exocrine glandular tissue, known as the major Salivary glands and numerous small aggregations of glands distributed in the mucosa of the oral cavity and oropharynx known as the minor salivary glands.

The major salivary glands consist of the parotid, submandibular, and sublingual glands.



Some of the salivary major roles is the lubrication during speech and mastication, immune defense (IgG and IgM antibodies), and contain digestive enzymes as salivary lipase and salivary amylase (ptyalin).

On average about (0.5- 1.5) liters of saliva is produced each day from the salivary glands, but the rate of secretion varies throughout the day between rest and function (meal time).

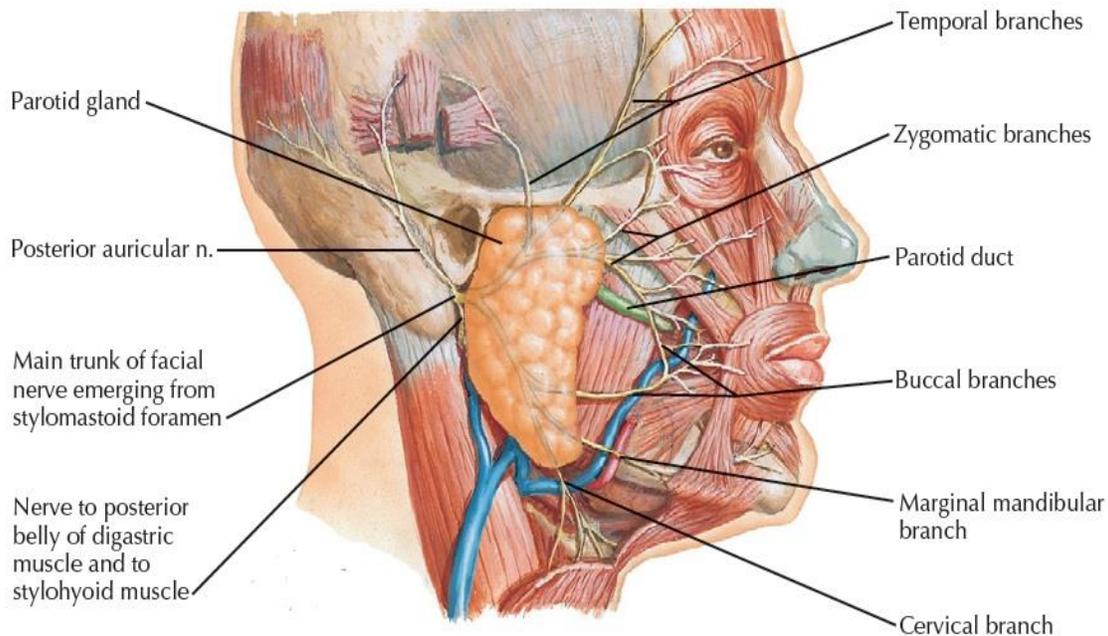
The functional secretory units of the salivary glands are the acini. The single acinus is either serous (which produce serous watery secretion) or mucous (which produce mucous viscous secretion); that's why the salivary glands are either serous or mucous or mixed secretions.

The parotid and submandibular glands are surrounded completely by fibrous capsule unlike sublingual and minor salivary glands that are lacking for the capsule or incomplete encapsulation.

Parotid Gland

- Parotid gland is roughly triangular in shape with an apex just inferior to the angle of the mandible and the superior base along the zygomatic arch; it is the largest salivary gland and is composed mostly of serous acini.
- Parotid gland is surrounded by thick capsule derived from the deep cervical fascia and it is known as parotid sheath.
- The facial nerve divides the gland into superficial and deep lobes, it's branches form within the parotid gland what's known as pes anserinus (goose feet).
- Approximately 75% or more of the parotid gland overlies the masseter muscle (superficial lobe); the rest lies in retromandibular area (deep lobe).

- **Boundaries of the superficial lobe:**
 - Superiorly by the zygomatic arch
 - Anteriorly by the masseter muscle
 - Posteriorly by the sternocleidomastoid muscle and external ear.
 - Medially by the ramus of the mandible
 - The inferior pole (the tail) is confined to the angle of the mandible and extends inferiorly to the upper part of sternocleidomastoid muscle



- The deep lobe of the gland extends into the parapharyngeal area and is confined by the styloid process (with its attachments), digastric muscles and carotid sheath.

- **Parotid duct**

- The main parotid duct is about 5 cm long, 3 mm diameter, known as Stensen's duct, which extends forward from the superficial part of the parotid gland.
- The duct passes horizontally superficial to the masseter muscle, a finger breadth inferior to the zygomatic arch then follow a sharp turn at the anterior border of the masseter muscle medially piercing through the buccal fat pad and buccinator muscle.
- It courses between the buccinator and buccal mucosa before opening into a small papilla opposite the upper second molar tooth. The intraoral course provides a valve-like mechanism.

- **Nerve Supply:**

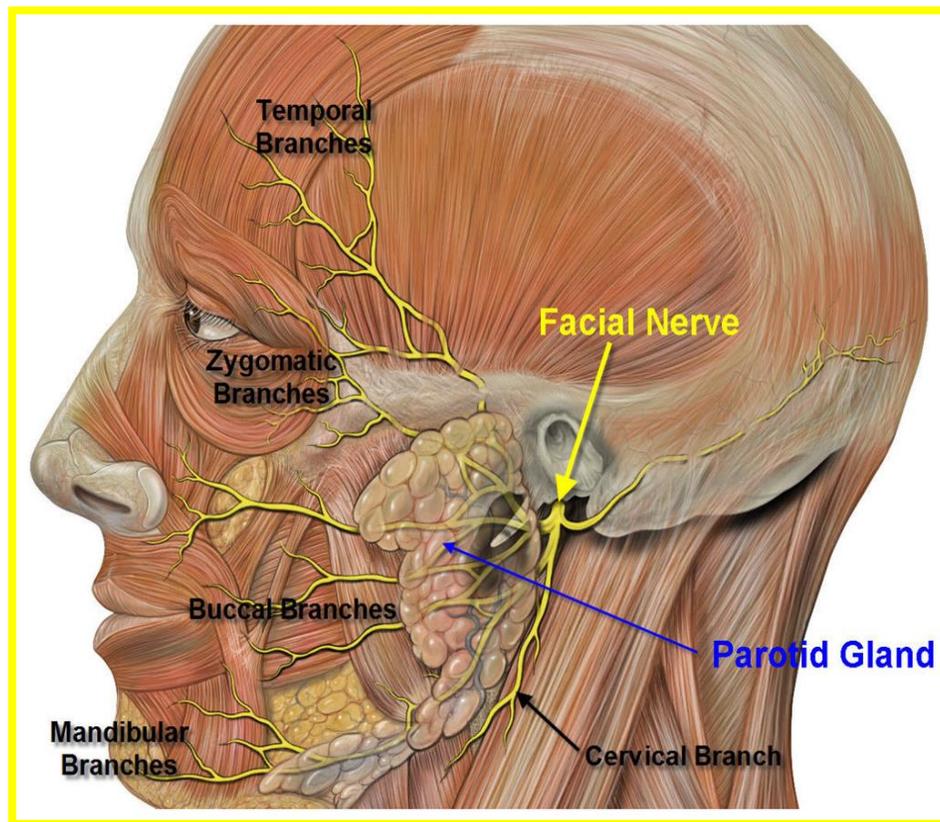
- Autonomic (secretory) innervation:

Parasympathetic secretomotor postganglionic fibers from otic ganglion which are carried by auriculotemporal nerve. (the preganglionic fibers are carried by glossopharyngeal nerve).

- Sensory innervation:

-Auriculotemporal nerve (branch of mandibular division of trigeminal nerve)

-Great auricular nerve (C2 C3)



- **Blood Supply:**

Branches from the external carotid artery supply the gland.

Venous drainage is to the retromandibular vein.

- **Lymphatic drainage:**

Lymph drains in to preauricular (parotid) lymph nodes (which are found within the parotid parenchyma) and then to the deep cervical lymph nodes.

- **Clinical Notes**

• **Parotid Salivary Gland Lesions**

A **benign** parotid neoplasm rarely, if ever, causes facial palsy. A **malignant** tumor of the parotid is usually highly invasive and quickly involves the facial nerve, causing unilateral facial paralysis.

• **Parotid Gland Infections**

The parotid gland may become acutely inflamed as a result of **retrograde bacterial infection** from the mouth via the parotid duct. The gland may also become infected via the bloodstream, as in **mumps**. In both cases, the gland is swollen; it is painful because the fascial capsule derived from the investing layer of deep cervical fascia is strong and limits the swelling of the gland.



Viral Parotitis (Mumps)

- **Frey's Syndrome**

- Frey's syndrome is an interesting complication that sometimes develops after penetrating wounds of the parotid gland. When the patient eats, beads of perspiration appear on the skin covering the parotid.
- This condition is caused by damage to the **auriculotemporal** and **great auricular** nerves. During the process of healing, the parasympathetic secretomotor fibers in the auriculotemporal nerve grow out and join the distal end of the great auricular nerve.
- Eventually, these fibers reach the cutaneous sympathetic nerves that supply the sweat glands in the facial skin. By this means, a stimulus intended for saliva production produces sweat secretion instead.

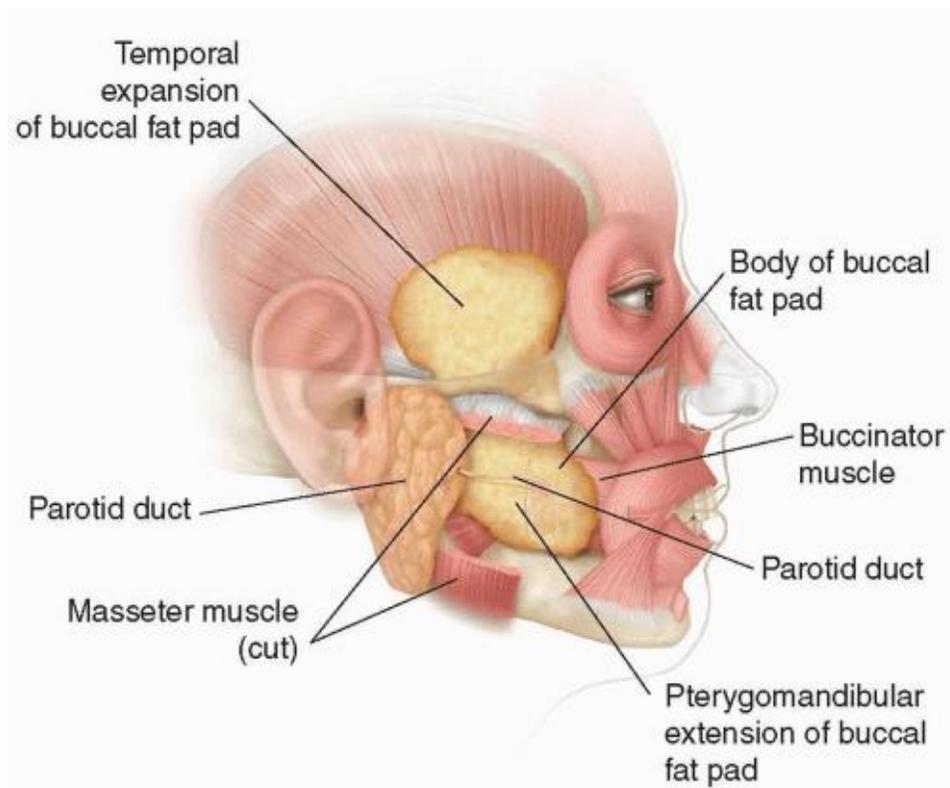


Freys Syndrome

The Buccal Pad of Fat

- Encapsulated collections of fat that lie superficial to the buccinators muscle.
- They are much larger in infants, to reinforce the cheeks and keep them from collapsing during sucking.

- The blood supply to the buccal fat-pad originates from:
 - The buccal and deep temporal branches of the maxillary artery.
 - The transverse facial branch of the superficial temporal artery.
 - Branches of the facial artery.
- This rich vascularity allows a reliable long axial flap and explains the rapid surface re-epithelialization.
- The buccal fat-pad's primary function is thought to be related to chewing and suckling, especially in infants. Another proposed function is as gliding pads that facilitate the action of the muscles of mastication. The buccal fat pad may also function as a cushion to protect sensitive facial muscles from injury due to muscle action or exterior force.



This is the End of the Lecture – Good Luck