ANATOMY AND EXAMINATION OF SALIVARY GLANDS

INTRODUCTION:

SALIVA

- It is a watery secretion in the mouth produced by the salivary glands that aids in the digestion of food.
- It serves as an aid to swallowing and digestion by moistening and softening food.

SALIVARY GLAND

- Salivary glands are made up of secretory acini and ducts.
- The basic secretory units of salivary glands are clusters of cells called an acinus.
- There are two types of secretions - serous and mucous.
- The acini can either be serous, mucous, or a mixture of serous and mucous.

CLASSIFICATION:

Based on size

Major salivary glands

- Parotid gland
- Sub mandibular gland
- Sublingual gland

Minor salivary glands

- Labial and buccal glands
- Lingual glands
- Palatine glands
- Glossopalatine glands

MAJOR SALIVARY GLAND:

PAROTID GLAND

- Largest salivary gland
- Average weight:15g
- Purely serous gland
- Situation: below the external acoustic meatus between the ramus of the mandible and sternocleidomastoid
- Anteriorly overlap masseter
- Accessory parotid

NERVE SUPPLY

Facial nerve enters the gland and divides into terminal branches within the gland.

ARTERIES AND VEINS

- Retromandibular vein is formed within the gland by union of superficial temporal and maxillary vein.

- Artery- external carotid artery, maxillary artery, superficial temporal, posterior auricular artery.

PAROTID DUCT

- The main excretory duct the Stenson's duct crosses the masseter and pierces the buccinator to open at papilla at buccal mucosa opposite to maxillary second molar.
- The duct measures 4-6 mm in length and 5 mm in diameter.
- A small portion of parotid accompanies duct forming accessory gland.

SUB MANDIBULAR 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 digastric triangle.
- Deep part: It is deep to mylohyoid and superficial to hyoglossus and styloglossus.

NERVE SUPPLY

The secretomotor pathway begins near superior salivatory nucleus. Preganglionic fibers pass through the sensory root of facial nerve, the geniculate ganglion, the chorda tympani and the lingual nerve to reach submandibular ganglion.

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.

SUB MANDIBULAR DUCT

- Whartons duct
- 5 cm long
- Emerges at the anterior end of deep part of the gland
- Runs forwards on hyoglossus between lingual and hypoglossal Nerve
- At the ant. Border of hyoglossus it is crossed by lingual nerve
- Opens in the floor of mouth at the side of frenulum of tongue

SUBLINGUAL GLAND

- It is smallest of the major salivary glands.
- The sublingual gland lies between floor of the mouth, below mucosa and above mylohyoid muscle.
- It is a mixed gland, but mucous units predominate.

NERVE SUPPLY

The nervous supply of the sublingual gland reflects that of the submandibular gland. It occurs via the chorda tympani, which carries fibers that originate from the facial nerve (CN VII) and are classed as secretomotor fibers.

BLOOD SUPPLY

The sublingual glands receive its primary blood supply from the sublingual and submental arteries, which are branches of the lingual artery and facial artery, respectively. These arteries are both branches of the external carotid artery.

SUBLINGUAL DUCT

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

DEVELOPMENT:

- Salivary glands arise from the ectoderm of the oral cavity.
- During embryonic life salivary gland is formed at specific location of the oral cavity through the growth of bud of oral epithelium in to underlying mesenchyme.
- Parotid & submandibular glands appear during 6th week of intrauterine life.
- Sublingual gland during 7-8th week of I.U life.
- Minor salivary glands begin their development during 3 rd month of I.U life

MINOR SALIVARY GLANDS:

- These are located beneath the epithelium in almost all parts of oral cavity.
- They open by short ducts directly in to mouth.
- They lack distinct capsule and instead mixing with the connective tissue mucosa. (Salivary glands are absent in anterolateral part of hard palate and Gingiva)

Labial and buccal glands: The glands of the lips and cheeks are called labial and buccal glands. Mixed glands consisting of mucous acini with serous demilunes. Intercalated ducts are variable in length, and intralobular ducts possess only a few cells with basal striations.

Lingual Gland: Anterior lingual glands (also called apical glands) are deeply placed seromucous glands that are located near the tip of the tongue on each side of the frenulum linguae.

Palatine Gland: The palatine glands form a continuous layer on the posterior surface of the mucous membrane of the soft palate and around the uvula. They are pure mucous glands.

Glossopalatine glands: The glands present in the region of isthmus in the glosso palatine fold are purely mucous gland. The posterior lingual glands are purely mucous glands, but von Ebner's glands are purely serous gland.

EXAMINATION:

Parotid Glands:

- Palpation should be performed on the lateral surface of the mandible and on the soft tissues inferior and medial to the angle.
- Bimanual palpation with the patients mouth close with the masseter muscle relaxed, this method can be readily performed from the side or behind.
- Insertion of the index finger along the teeth to the most posterior location in the cheek with the application of lateral pressure against the examining thumb on the face, this palpation can be performed.

Submandibular glands:

- External palpation should start with the finger extending towards the midline and the thumb on the body of the mandible.
- Pressure is exerted both superiorly and laterally and the finger is gradually moved beneath the inferior border of the mandible.

INVESTIGATIONS FOR SALIVARY GLANDS:

1- Sialometery: measures the amount of saliva production in a certain time.

2- Sialo chemistry: measures the composition of saliva.

3- Sialography: by introducing the iodine containing contrast media through the opening of the duct.

4- Sonography: Ultrasonic patterns when dealing with minor salivary glands.

5- Cytology: by aspiration.

6- Biopsy.

DISEASES OF THE SALIVARY GLANDS:

A) INFLAMMATORY LESIONS OF SALIVARY GLANDS

1.ACUTE INFLAMMATION

- VIRAL-MUMPS PAROTITIS
- BACTERIAL - ACUTE SUPPURATIVE PAROTITIS ➡ PAROTID ABSCESS

2.CHRONIC INFLAMMATION

- CHRONIC PAROTITIS
- SJOGREN'S SYNDROME

B) CYSTS OF THE SALIVARY GLANDS

- MUCOCELE
- RANNULA
-

C)STONES OF THE SALIVARY GLANDS

D)TUMOURS OF SALIVARY GLANDS

PAROTID IS GLAND OF TUMOUR WHILE SUBMANDIBULAR IS A GLAND OF STONES.

BENIGN TUMORS

1.PLEOMORPHIC ADENOMA

2.WARTHIN'S TUMOUR

MALIGNANT TUMORS

1.ACINIC CELL CARCINOMA

2.MUCOEPIDEMOID CARCINOMA

3.ADENOID CYSTIC CARCINOMA

4.CARCINOMA ex PLEOMORPHIC ADENOMA (RARE)

CONCLUSION:

- Salivary glands are the important glands of the oral cavity which produces saliva, an essential fluid required for normal mastication, swallowing, digestion and above all to maintain the normal integrity of oral mucosa and teeth.
- Proper knowledge about the normal anatomy and functioning of the gland is necessary to diagnose if any pathology is present.
- Careful history taking and clinical evaluation will help in the early diagnosis and treatment of salivary gland diseases.

REFERENCES:

- Orban's oral histology and embryology
- Wheeler's dental anatomy, physiology, and occlusion
- General anatomy vol.3 BD Chaurasiya