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& Scientific Research
Al-Muthanna University
Faculty of Pharmacy

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Theory Human Anatomy

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The Digestive System in the Head and Neck Part 1

The Mouth

The Lips

The lips are two fleshy folds that surround the oral orifice (Fig. 11.72). They are covered on the outside by skin and are lined on the inside by mucous membrane. The substance of the lips is made up by the orbicularis oris muscle and the muscles that radiate from the lips into the face (Fig. 11.73). Also included are the labial blood vessels and nerves, connective tissue, and many small salivary glands.

The **philtrum** is the shallow vertical groove seen in the midline on the outer surface of the upper lip. Median folds of mucous membrane—the **labial frenulae**—connect the inner surface of the lips to the gums.

The Mouth Cavity

The mouth extends from the lips to the pharynx. The entrance into the pharynx, the **oropharyngeal isthmus,** is formed on each side by the palatoglossal fold (Fig. 11.72). The mouth is divided into the vestibule and the mouth cavity proper.

Vestibule

The vestibule lies between the lips and the cheeks externally and the gums and the teeth internally. This slitlike space communicates with the exterior through the oral fissure between the lips. When the jaws are closed, it communicates with the mouth proper behind the third molar tooth on each side. The vestibule is limited above and below by the reflection of the mucous membrane from the lips and cheeks to the gums. The lateral wall of the vestibule is formed by the cheek, which is made up by the buccinator muscle and is lined with mucous membrane. The tone of the buccinator muscle and that of the muscles of the lips keeps the walls of the vestibule in contact with one another. The **duct of the parotid salivary gland** opens on a small papilla into the vestibule opposite the upper second molar tooth (Fig. 11.72).

Mouth Proper

The mouth proper has a roof and a floor.

Roof of Mouth

The roof of the mouth is formed by the hard palate in front and the soft palate behind (Fig. 11.72).

Floor of Mouth

The floor is formed largely by the anterior two thirds of the tongue and by the reflection of the mucous membrane from the sides of the tongue to the gum of the mandible. A fold of mucous membrane called the **frenulum of the tongue** connects the undersurface of the tongue in the midline to the floor of the mouth (Fig. 11.72). Lateral to the frenulum, the mucous membrane forms a fringed fold, the **plica fimbriata** (Fig. 11.72)

The Tongue

The tongue is a mass of striated muscle covered with mucous membrane (Fig. 11.77). The muscles attach the tongue to the styloid process and the soft palate above and to the mandible and the hyoid bone below. The tongue is divided into right and left halves by a median **fibrous septum.**

Mucous Membrane of the Tongue

The mucous membrane of the upper surface of the tongue can be divided into anterior and posterior parts by a V-shaped sulcus, the **sulcus terminalis** .

The apex of the sulcus projects backward and is marked by a small pit, the foramen cecum. The sulcus serves to divide the tongue into the anterior two thirds, or oral part, and the posterior third, or pharyngeal part.

Three types of papillae are present on the upper surface of the anterior two thirds of the tongue: the **filiform papillae,** the **fungiform papillae,** and the **vallate papillae.**

The mucous membrane covering the posterior third of the tongue is devoid of papillae but has an irregular surface, caused by the presence of underlying lymph nodules, the **lingual tonsil.**

The mucous membrane on the inferior surface of the tongue is reflected from the tongue to the floor of the mouth. In the midline anteriorly, the undersurface of the tongue is connected to the floor of the mouth by a fold of mucous membrane, the **frenulum of the tongue.** On the lateral side of the frenulum, the deep lingual vein can be seen through the mucous membrane. Lateral to the lingual vein, the mucous membrane forms a fringed fold called the **plica fimbriata** (Fig. 11.72).

Muscles of the Tongue

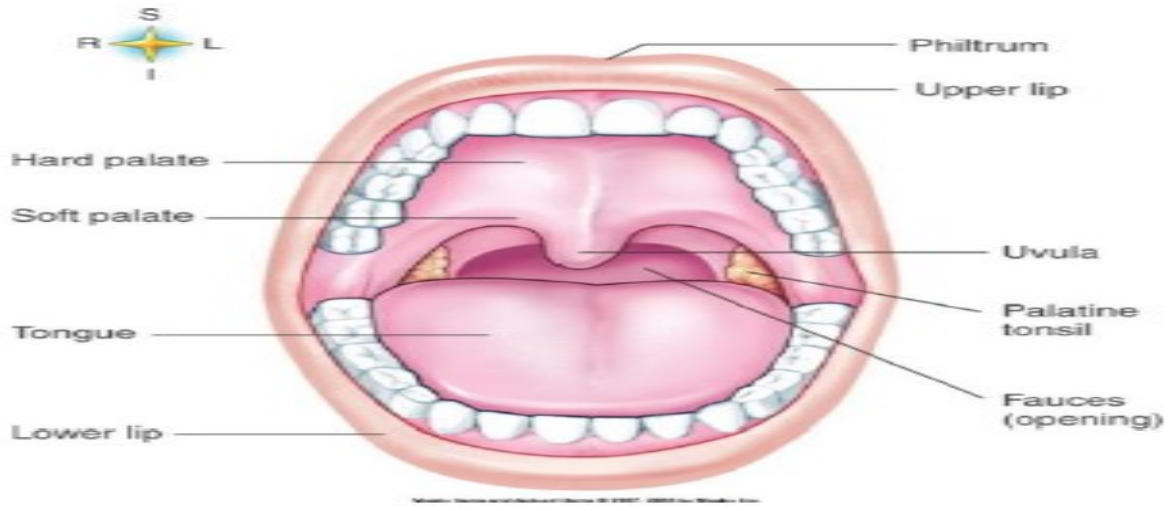
The muscles of the tongue are divided into two types: intrinsic and extrinsic.

Intrinsic Muscles

These muscles are confined to the tongue and are not attached to bone. They consist of longitudinal, transverse, and vertical fibers.

Extrinsic Muscles

These muscles are attached to bones and the soft palate.



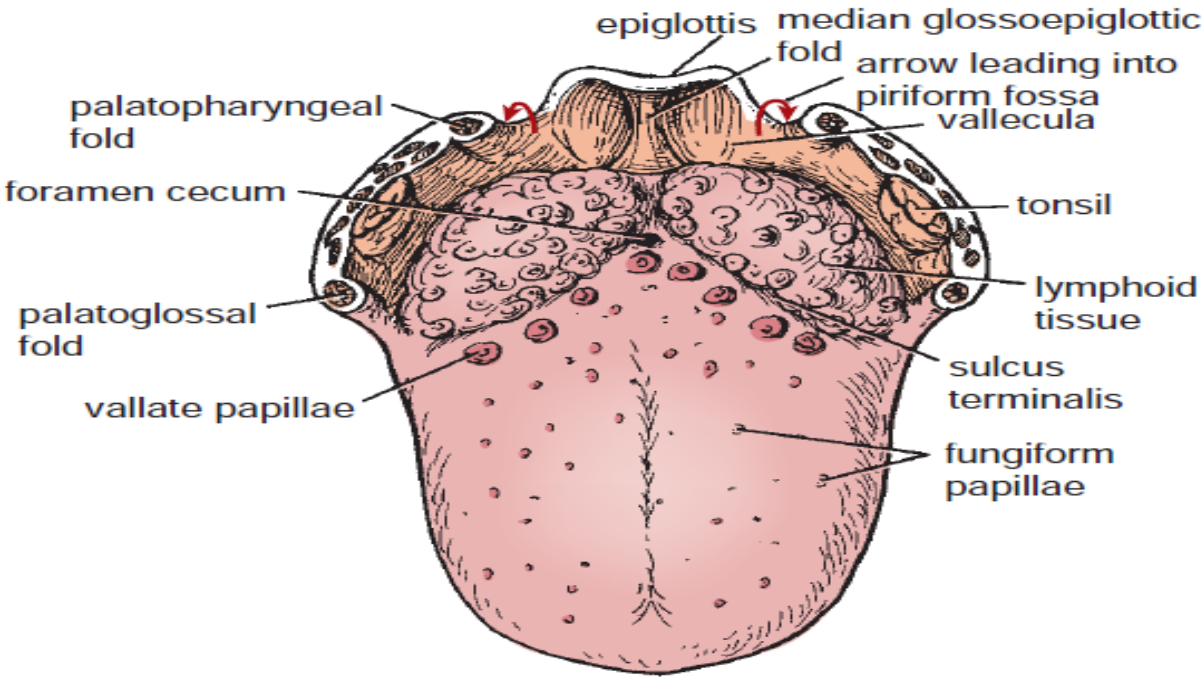


FIGURE 11.77 Dorsal surface of the tongue showing the valleculae, the epiglottis, and the entrance into the piriform fossa on each side (*arrows*).

The Palate

The palate forms the roof of the mouth and the floor of the nasal cavity. It is divided into two parts: the hard palate in front and the soft palate behind.

Hard Palate

The hard palate is formed by the palatine processes of the maxillae and the horizontal plates of the palatine bones (Fig. 11.80). It is continuous behind with the soft palate.

Soft Palate

The soft palate is a mobile fold attached to the posterior border of the hard palate (Fig. 11.81). Its free posterior border presents in the midline a conical projection called the **uvula.** The soft palate is continuous at the sides with the lateral wall of the pharynx. The soft palate is composed of :

1.Mucous Membrane

The mucous membrane covers the upper and lower surfaces of the soft palate.

2.Palatine Aponeurosis

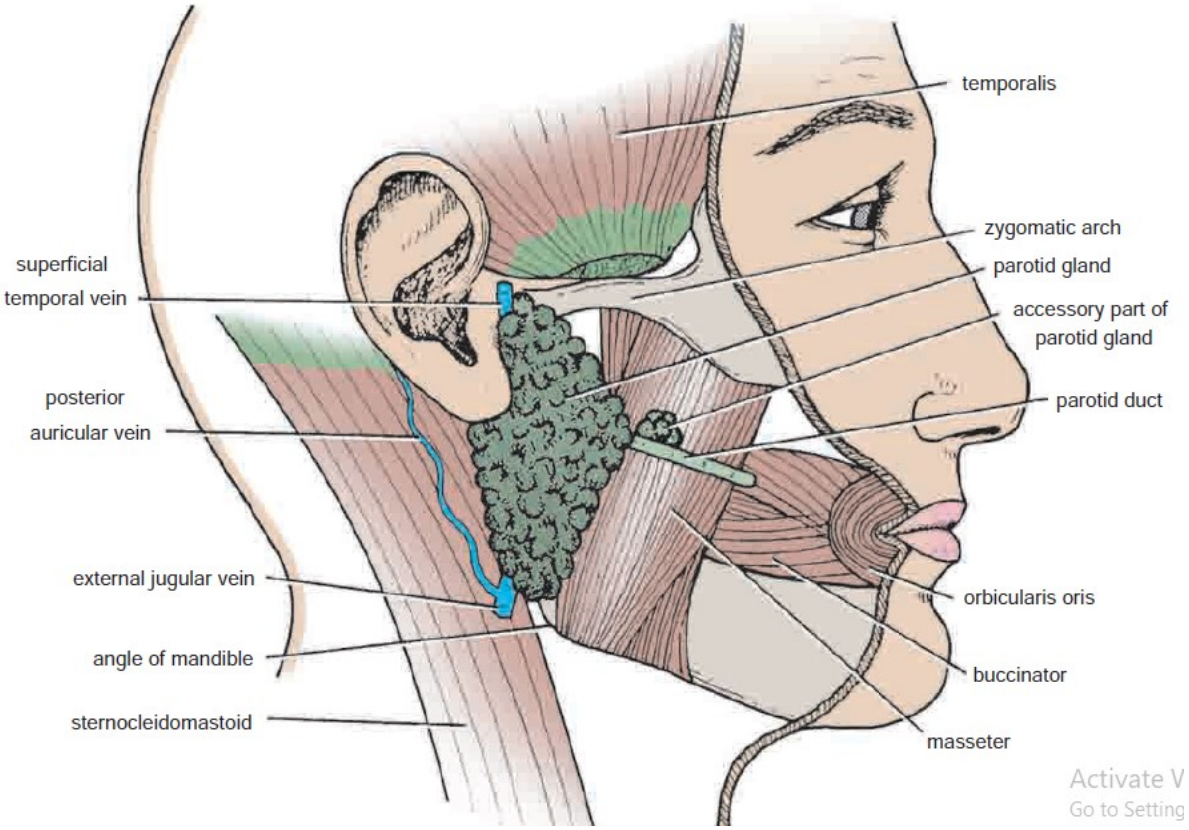
The palatine aponeurosis is a fibrous sheet attached to the posterior border of the hard palate.

3.Muscles of the Soft Palate

The Salivary Glands

Parotid Gland

The parotid gland is the largest salivary gland and is composed mostly of serous acini. It lies in a deep hollow below the external auditory meatus, behind the ramus of the mandible and in front of the sternocleidomastoid muscle. The facial nerve divides the gland into **superficial** and **deep lobes.** The parotid duct emerges from the anterior border of the gland and passes forward over the lateral surface of the masseter. It enters the vestibule of the mouth upon a small papilla opposite the upper second molar tooth.



Submandibular Gland

The submandibular gland consists of a mixture of serous and mucous acini. It lies beneath the lower border of the body of the mandible (Fig. 11.86). The submandibular duct emerges from the anterior end of the deep part of the gland and runs forward beneath the mucous membrane of the mouth. It opens into the mouth on a small papilla, which is situated at the side of the frenulum of the tongue(Fig. 11.72).

Sublingual Gland

The sublingual gland lies beneath the mucous membrane (sublingual fold) of the floor of the mouth, close to the frenulum of the tongue (Fig. 11.86). It has both serous and mucous acini. The **sublingual ducts** (8 to 20 in number) open into the mouth on the summit of the sublingual fold (Fig. 11.72).

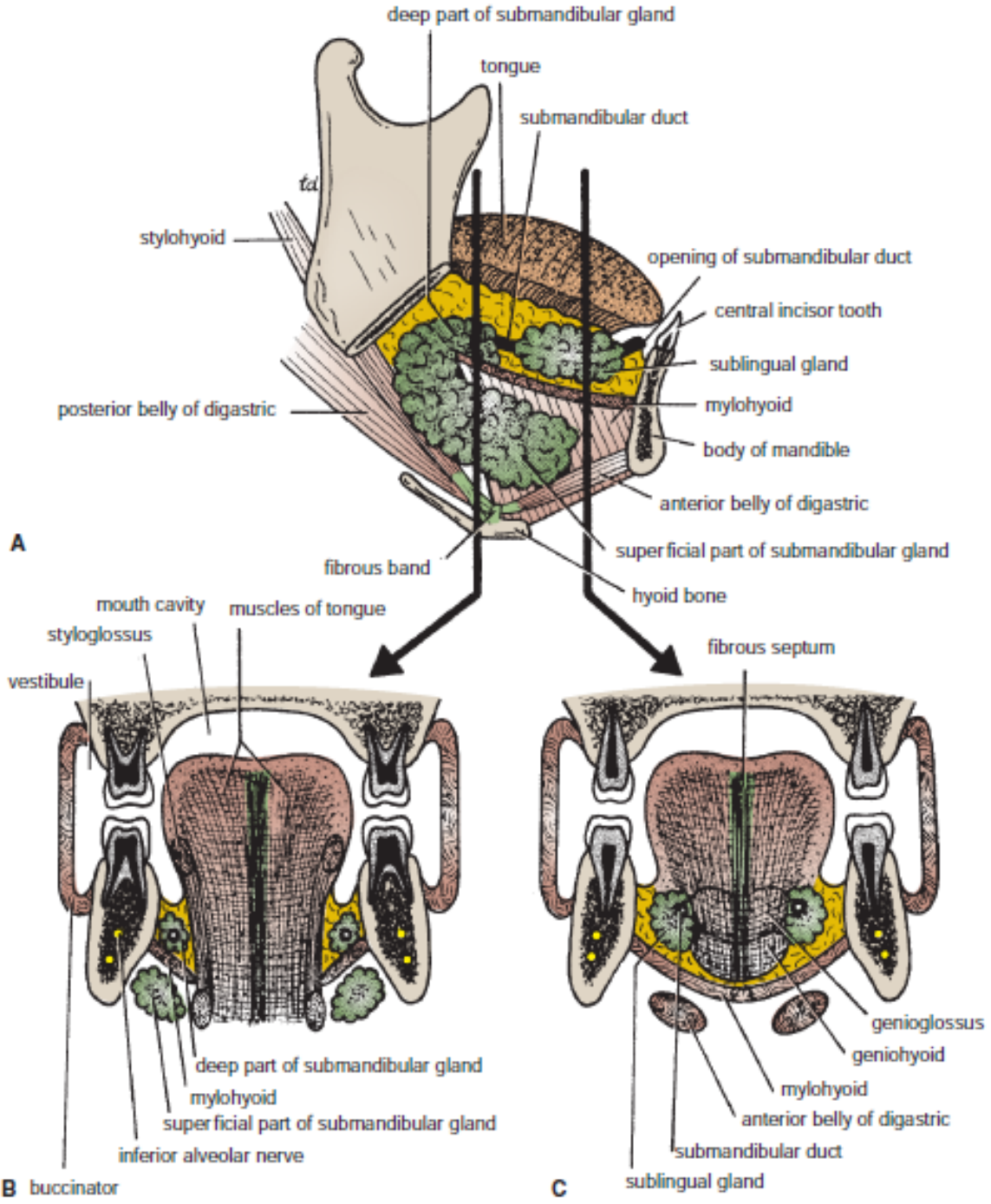


FIGURE 11.86 **A.** Submandibular and sublingual salivary glands (*lateral view*). **B.** Coronal section through the superficial and deep parts of the submandibular salivary glands. **C.** Coronal section (anterior to B) through the sublingual salivary glands and the ducts of the submandibular salivary glands.

The Pharynx

The pharynx is situated behind the nasal cavities, the mouth, and the larynx (Fig. 11.87) and may be divided into **nasal, oral,** and **laryngeal parts.** The pharynx is funnel shaped, its upper, wider end lying under the skull and its lower, narrow end becoming continuous with the esophagus. The pharynx has a musculomembranous wall, which is deficient anteriorly. Here, it is replaced by the posterior openings into the nose (choanae), the opening into the mouth, and the inlet of the larynx.

It is therefore divisible into nasal, oral, and laryngeal parts: the

(1) naso-pharynx,

(2) oro-pharynx,

(3) laryngo-pharynx,

The pharynx extends from the base of the skull down to the inferior border of the cricoid cartilage, where it becomes continuous with the esophagus

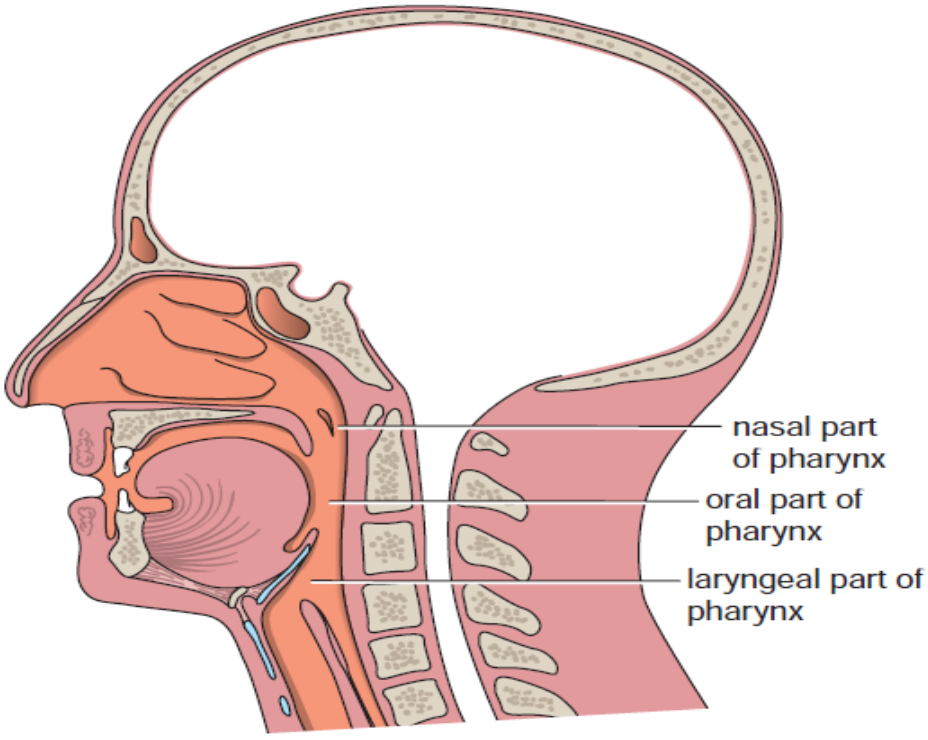


FIGURE 11.87 Sagittal section through the nose, mouth, pharynx, and larynx to show the subdivisions of the pharynx.