Oral Histology

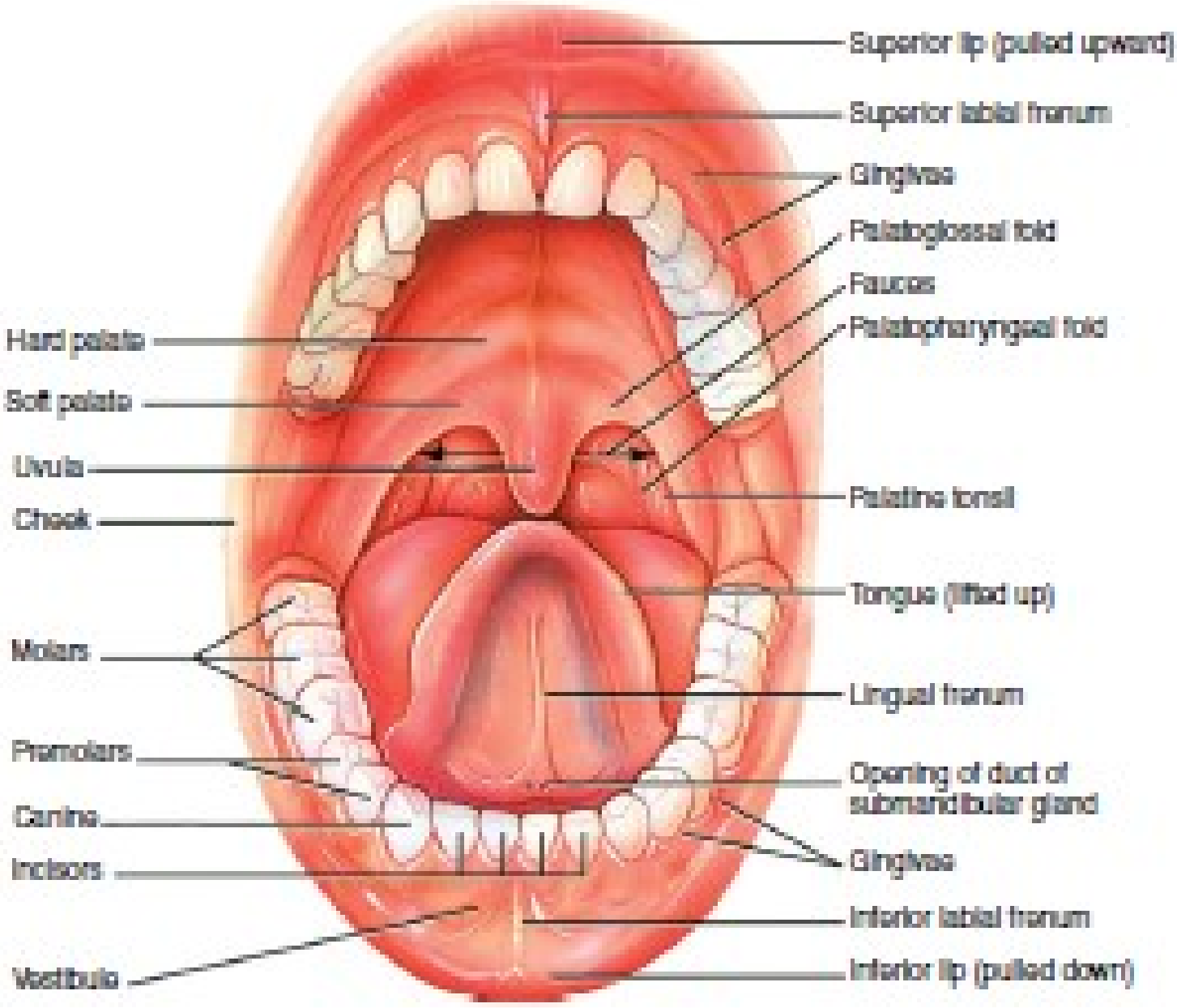
Oral histology: It is a science deals with the study of the structures and development of the tissues of the oral cavity and it's accessories.

Why we study Oral Histology :

- To understand the structures and functions of oral tissues.
- To understand the development of oral tissues.
- Diseases originating in the oral cavity can have systemic effects; likewise, systemic diseases can affect the oral cavity and the first signs and symptoms of many diseases may appear in the mouth.

Anatomical Description of The Oral Cavity

The oral cavity begins at the junction of the vermilion border of the lips and the mucosa lining the inside of the lips, and extends posteriorly to the palatoglossal folds, Beyond the palatoglossal folds are then palatopharyngeal folds and the beginning of the oropharynx, where the digestive and respiratory tracts come together.


Superior lip (pulled upward)
Superior labial frenum
Gingivae
Palatoglossal fold
Fauces
Palatopharyngeal fold
Hard palate
Soft palate
Uvula
Palatine tonsil
Cheek
Tongue (lifted up)
Molars
Lingual frenum
Premolars
Opening of duct of submandibular gland
Canine
Gingivae
Incisors
Inferior labial frenum
Vestibule
Inferior lip (pulled down)

Functions of the oral cavity

1- fragmentation and modification of the food: The food is mechanically fragmented by the teeth chemically modified by the saliva secreted by the salivary glands.

2- Lubrication the food: The saliva changes the nature and helps in easy movement of the food from the oral cavity throught the esophagus to the stomach.

3-It functions in mastication, alimentation, respiration, innate and immune defense, special and general sensation, speech.

The lips:

The upper and lower lips which represent the gateway of the oral cavity ; are muscular folds covered by skin externally and mucous membrane internally.

These lips are characterized by a red dark appearance called **vermilion zone** outlined from the surrounding skin by a transition zone called **vermilion border**.

Divisions of oral cavity: The oral cavity is divided into two division :

1. Vestibule: Is the upper and lower horse shoe –shaped space which separate the lips and cheeks from the **alveolar processes** of the maxilla and mandible that support and hold the teeth**.**

The vestibule is limited posteriorly by the ramus of the mandible, and superiorly and inferiorly by the mucolabial and mucobuccal folds.

2. Oral cavity proper : It is a group of soft and hard tissues lies behind the teeth and consist of :

1.The hard and soft palates.

2.The tongue and the floor of the mouth .

3.The maxillary and mandibular teeth .

4.The oropharynex.

Oral structures:

Which composed from:

1- **Hard tissues.**

2- Soft tissues.

Hard tissue consist of

1- Enamel 2- Dentin 3- Cementum 4- Alveolar bone

5- Jaw bones. 6- Tempromandibular joint.

Soft tissues consist of:

1- Pulp. 2- Gingiva 3- Periodontal ligament

4- Oral mucosa. 5- Sub-mucosa: Blood vessels, Nerves.

6- Salivary glands

The palate:

It is the roof of the mouth that separates the oral cavity from the nasal cavity.

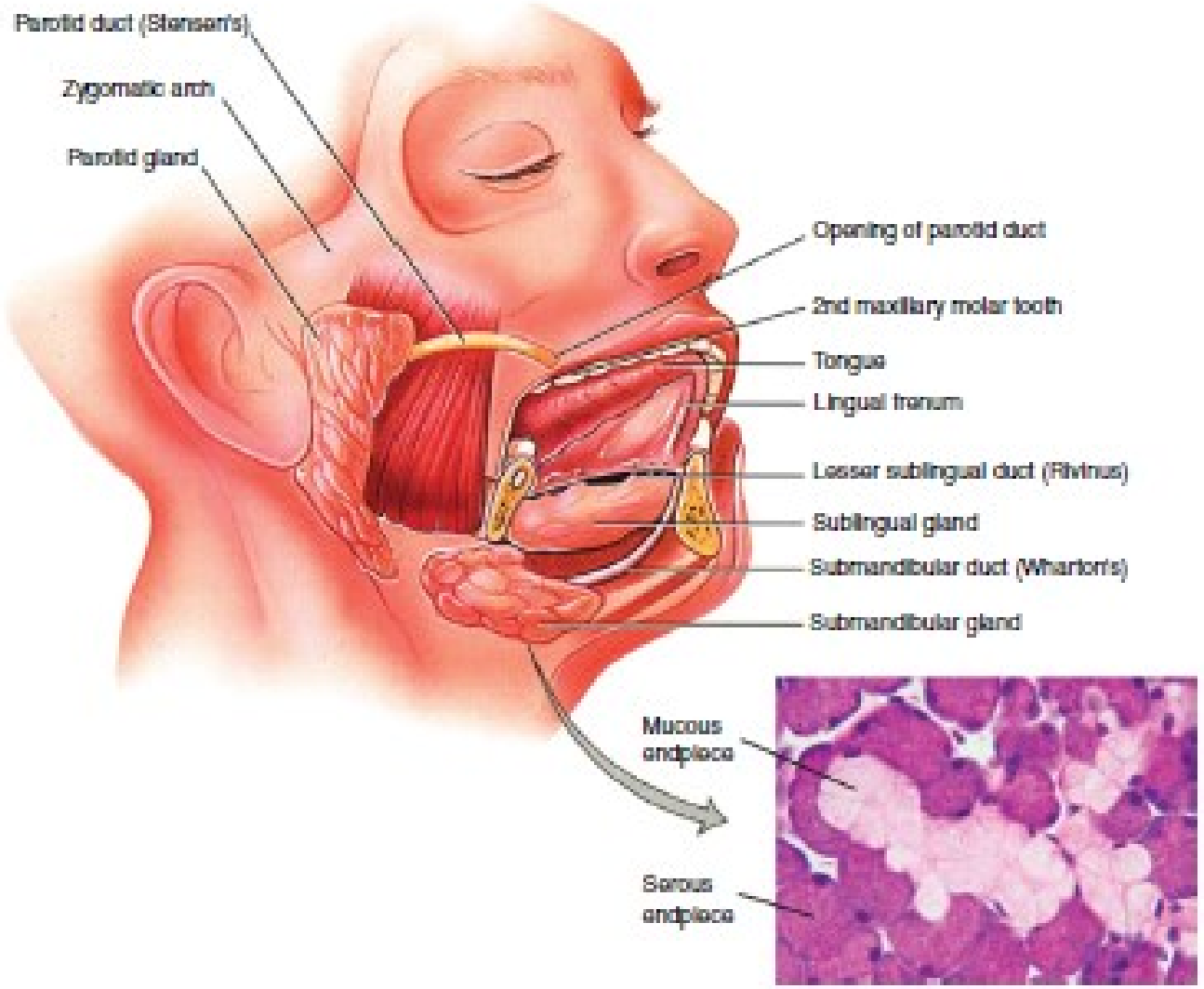
The palate is divided into hard anterior and soft posterior parts.

A midline ridge of tissue on the hard palate is called the **median palatine raphe** , represents the fusion of the palatal bones.

The salivary glands: their ducts open in the oral cavity to secrete saliva.

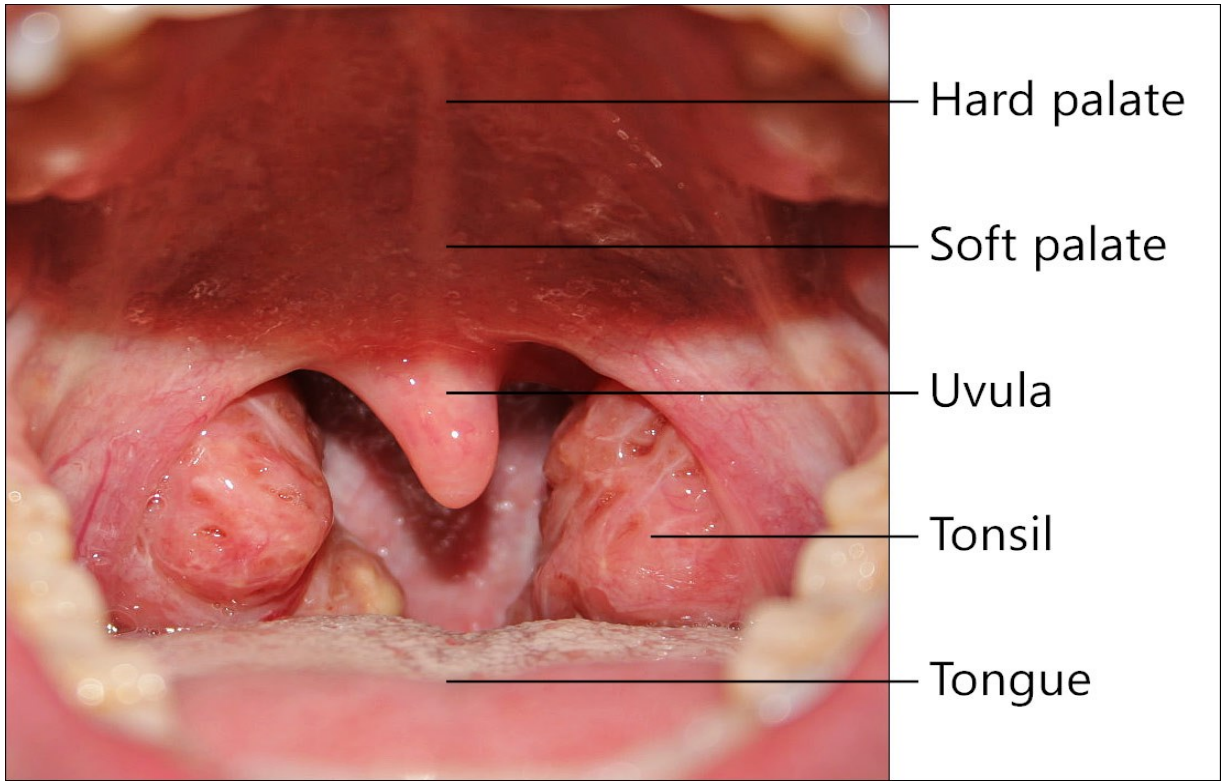
There are two types of salivary glands in the oral cavity:

1. Minor salivary glands , which are widely distributed in the oral sub mucosa .
2. Major salivary glands, which are much larger and consist of the parotid ,the sub mandibular ,and the sub lingual glands.


Parotid duct (Stensen's)
Zygomatic arch
Parotid gland
Opening of parotid duct
2nd maxillary molar tooth
Tongue
Lingual frenum
Lesser sublingual duct (Rivinus)
Sublingual gland
Submandibular duct (Wharton's)
Submandibular gland
Mucous acinus
Serous acinus

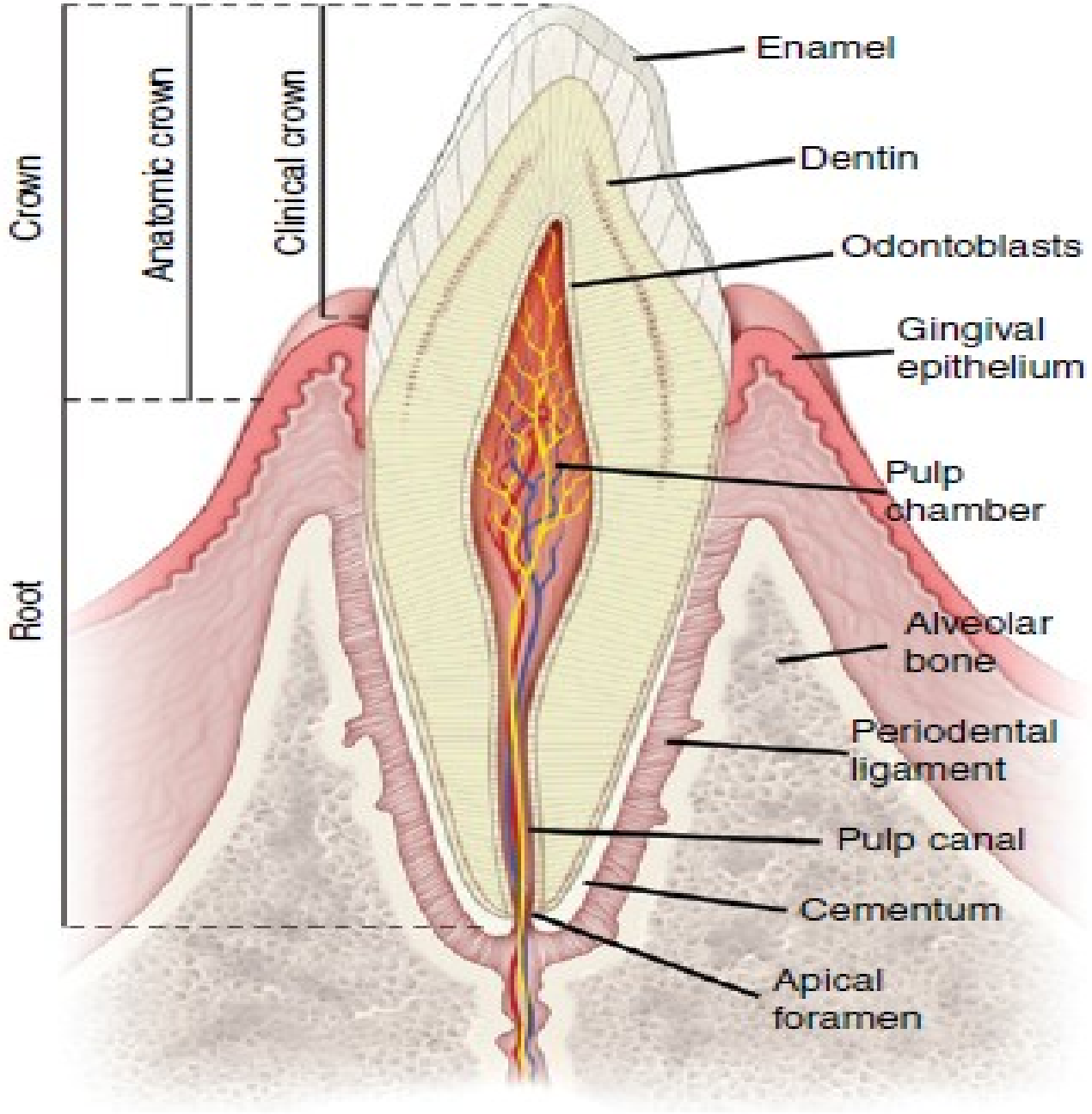
Lymphatic tissue：

The lymphatic tonsil is a special immunological tissues found organized as a protection ring at the entrance of both the digestive and respiratory tract.



The teeth and its anatomical structure:

The teeth are among the most unique and complex structures of the body, A tooth consists of a **crown**, containing the pulp chamber and one or more **roots, which contain the pulp canals,** The anatomic crown is covered by enamel, the hardest biological substance known; the **clinical** crown is the portion of the crown exposed in the oral cavity. The main tissue of the tooth is dentin. Dentin supports the enamel,. Dentin encloses the **pulp, which through its blood and** nerve supply .Enamel is a product of cells derived from the oral ectoderm ,Thus, its composition and structure differ markedly from those of the mesenchymally derived dentin, cementum, and bone.


Crown
Anatomic crown
Clinical crown
Root
Enamel
Dentin
Odontoblasts
Gingival epithelium
Pulp chamber
Alveolar bone
Periodental ligament
Pulp canal
Cementum
Apical foramen

- Text book

ORBAN’S Oral histology and Embryology .

Edited by S.N.Bhaskar.