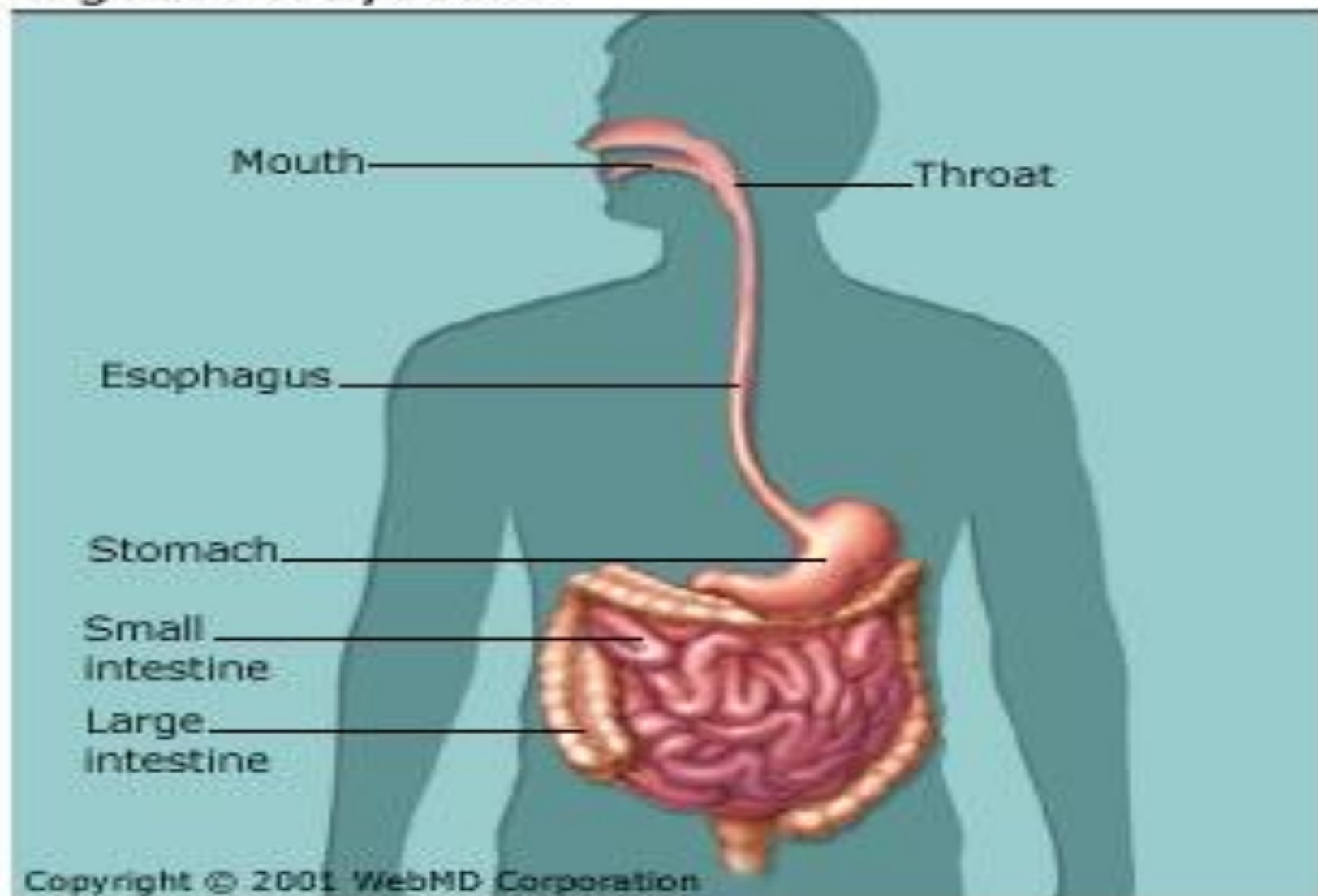


Digestive System



The digestive system

- The digestive system is a long **hollow tube** or tract that starts at the oral cavity and terminates at the anus.
- The system consists of the **oral cavity, esophagus, stomach, small intestine, large intestine, rectum, and anal canal.**
- The oral cavity consists of the mouth and its structures, which include the tongue, teeth and major and minor salivary glands, and tonsils.

The Lips

- The **oral cavity** is formed, by (the lips and cheeks.) The lips are lined by a very thin skin covered by a stratified squamous keratinized epithelium. Blood vessels are close to the lip surface, imparting a red color to the lips. The outer surface of the lip contains hair follicles, sebaceous glands, and sweat glands. The lips also contain skeletal muscle called **orbicularis oris M.**
- **the outer lining** changes to a thicker, stratified squamous non keratinized oral epithelium. Beneath the oral epithelium are found mucus-secreting **labial glands.**

The lip structure:

1- The external surface

2- The internal surface

3- the vermilion margin (red margin)

The external surface of the lip:

is covered with **thin skin** formed of epidermis and dermis with the associated **hair follicles, sebaceous glands and sweat glands.** underneath the skin, **bundles of circular skeletal muscle of the orbicularis oris M.**

The internal surface of The lip:

Lines by **mucous membrane** which is formed of: **stratified squamous non-keratinized**

epithelium (thicker than that of epidermis of the external surface)

lamina propria : formed C.T. contain; Blood vessels, lymphatic Vessels , nerves and **group of labial minor salivary glands (mucous acini)**

The Vermilion (red) margin of the lip:

is continuous with the thin skin of the ext. surface of the lip covered by modified skin characterized by : transparent epithelium; formed of stratified squamous non-keratinized epithelium without hair follicles, sebaceous glands or sweat glands. deeply and vascular dermal papillae (giving the red color of the lip margin), highly supplied with nerves.

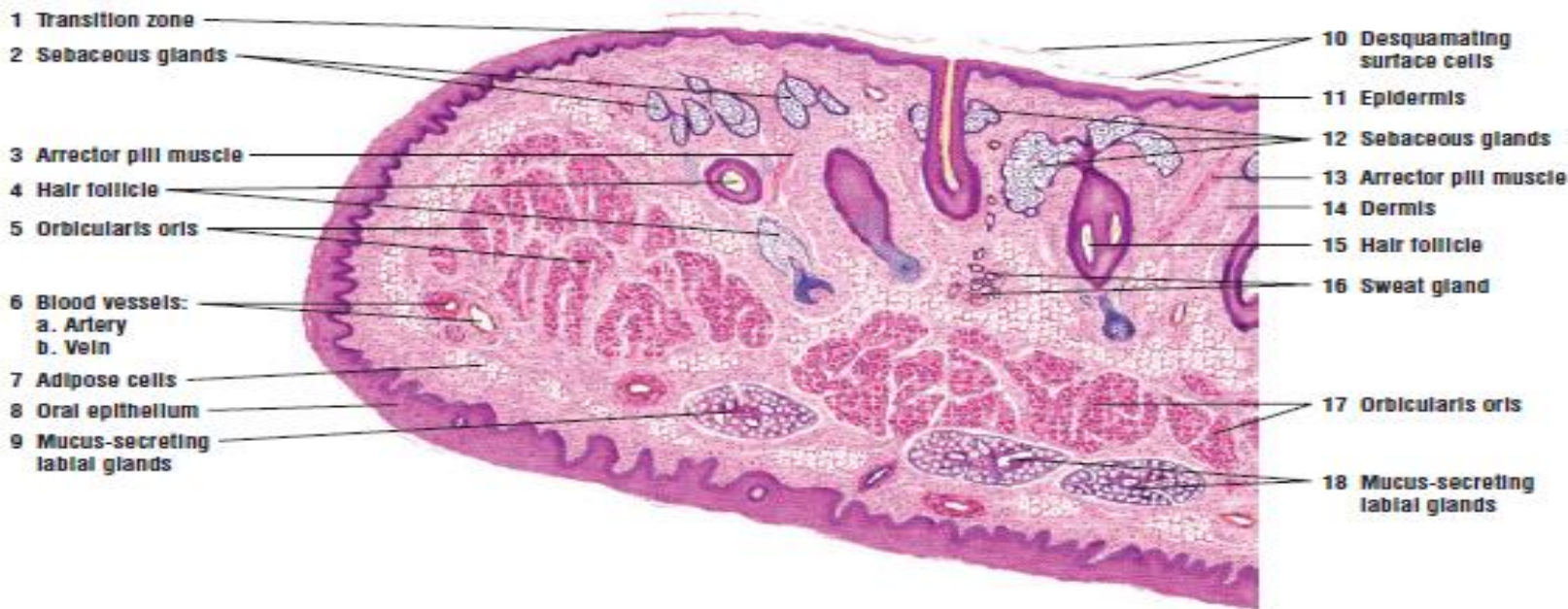


FIGURE 11.1 ■ Lip (longitudinal section). Stain: hematoxylin and eosin. Low magnification.

The Tongue

- The **tongue** is a muscular organ located in the oral cavity. The core of the tongue consists of **connective tissue** and interlacing bundles of **skeletal muscle fibers**.
- The distribution and random orientation of individual skeletal muscle fibers in the tongue allows for increased movement during chewing, swallowing, and speaking.

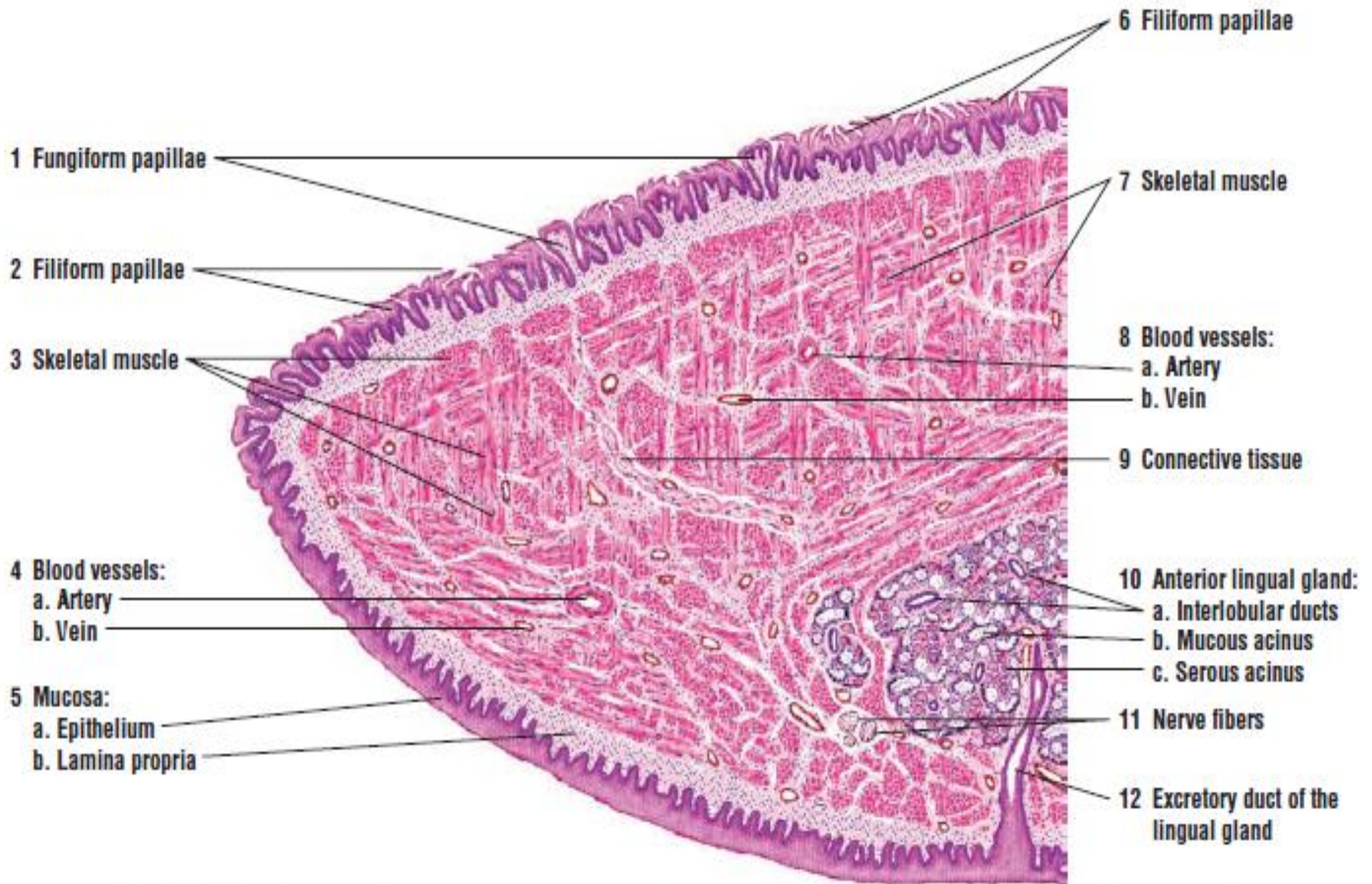
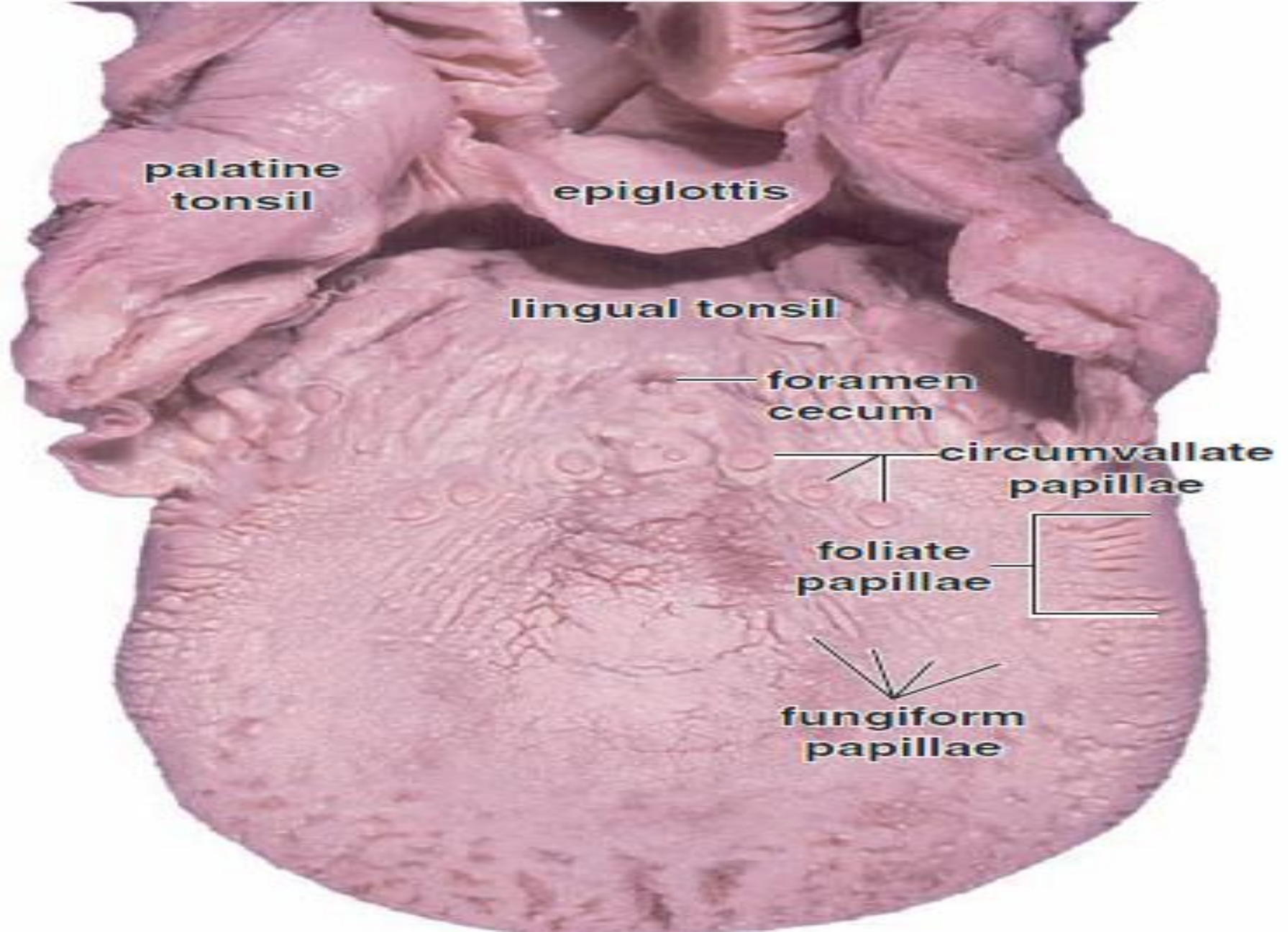


FIGURE 11.2 ■ Anterior region of the tongue (longitudinal section). Stain: hematoxylin and eosin. Low magnification.

Papillae

- The epithelium on the dorsal surface of the tongue is irregular or rough owing to numerous elevations or projections called **papillae**.
- All papillae on the tongue are covered by **stratified squamous epithelium** that shows partial or incomplete **keratinization**. In contrast, the epithelium on the ventral surface of the tongue is smooth.
- There are four types of papillae on the tongue: filiform, fungiform, circumvallate, and foliate.



Papillae

1. Filiform

2. Fungiform •

3. Circumvallate papillae

4. Foliate Papillae

•

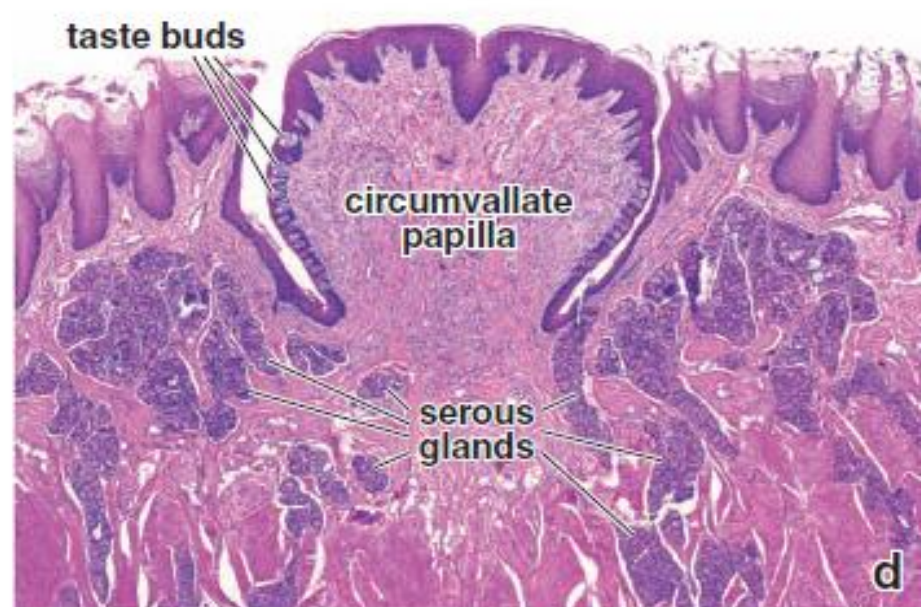
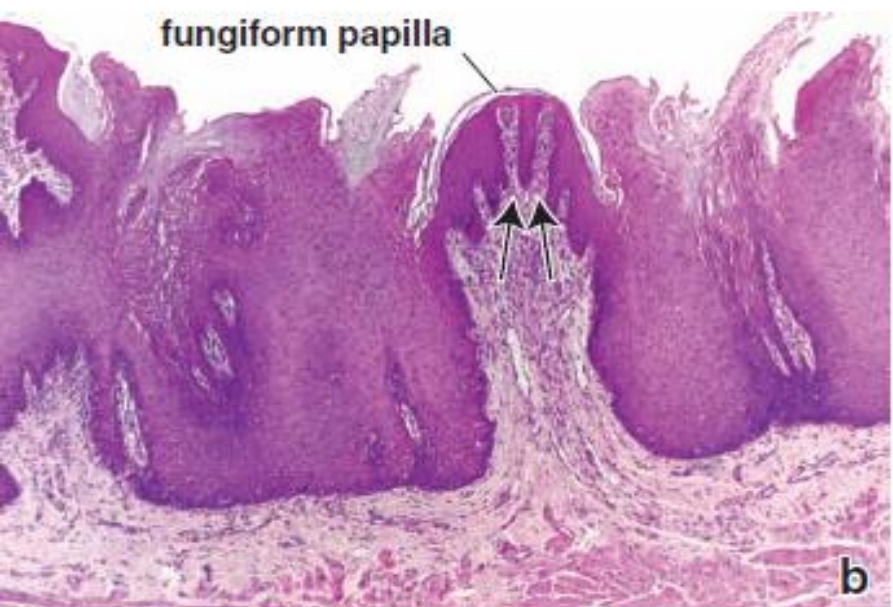
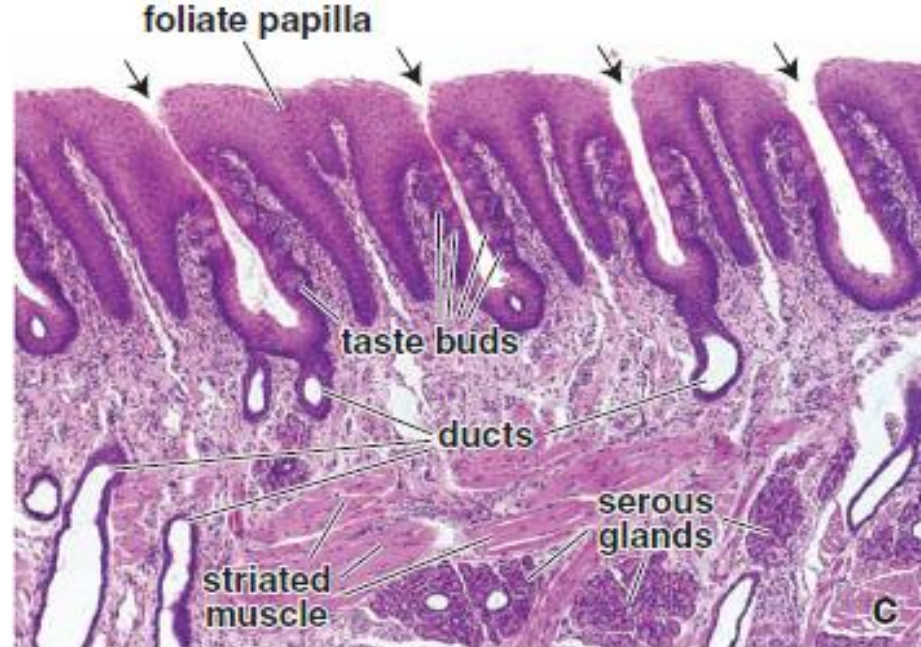
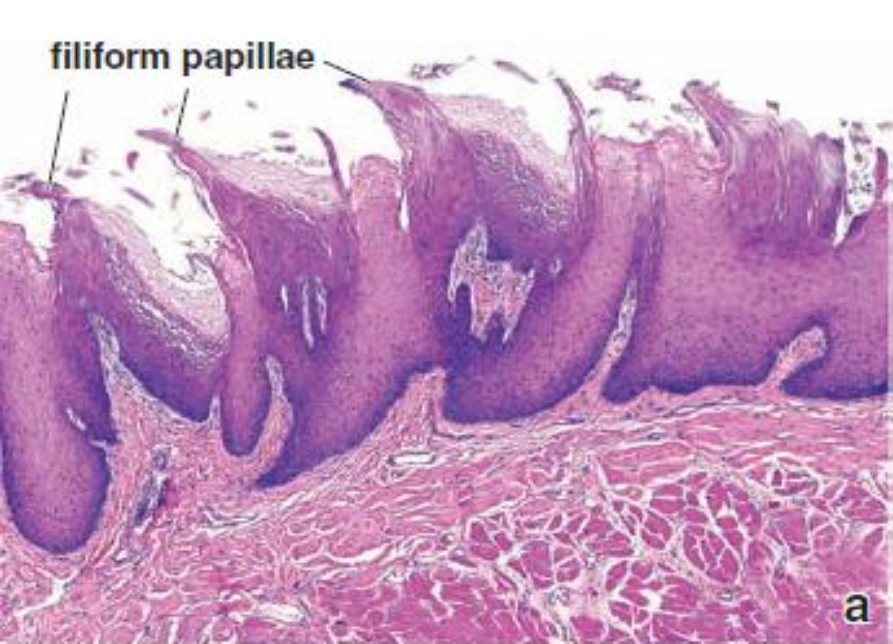
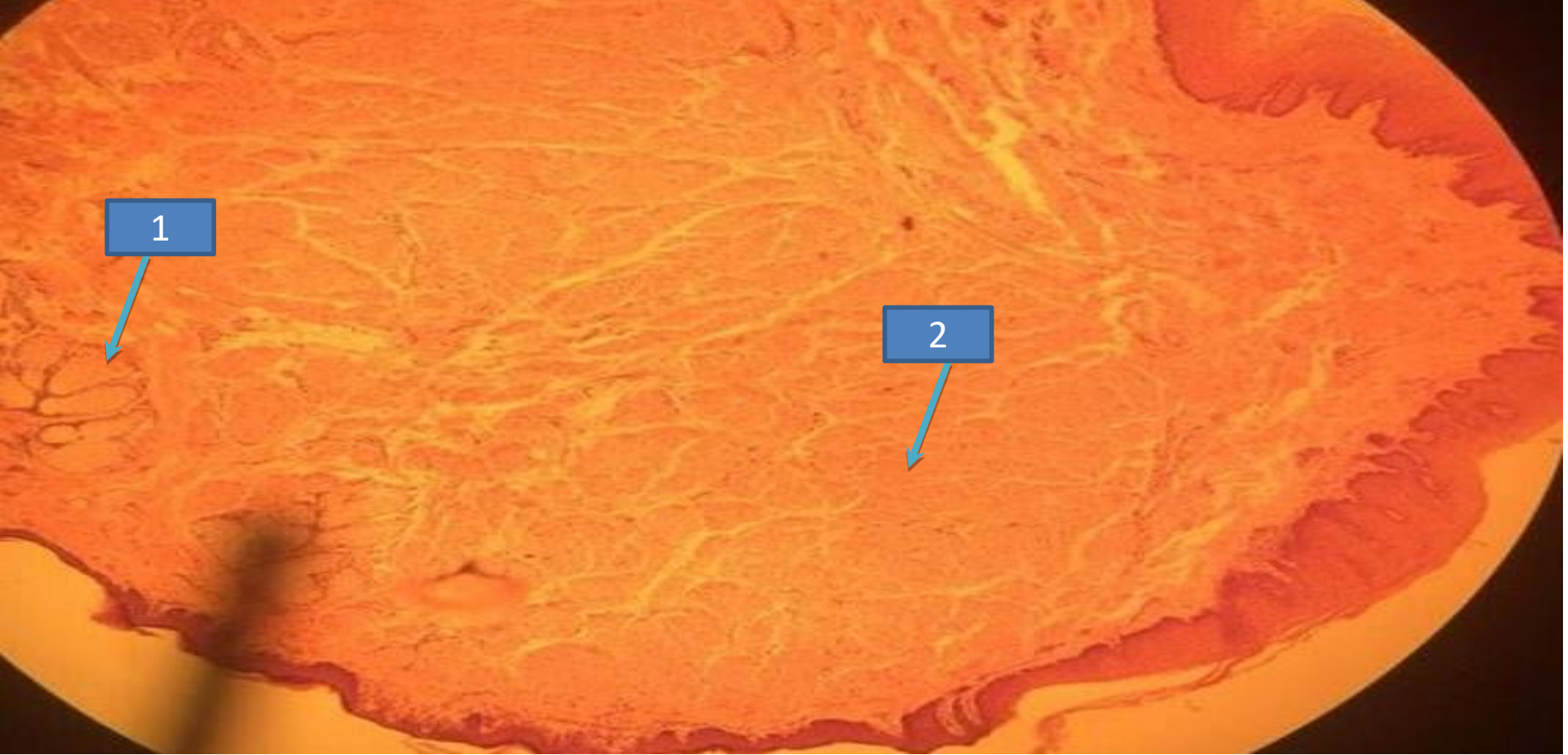


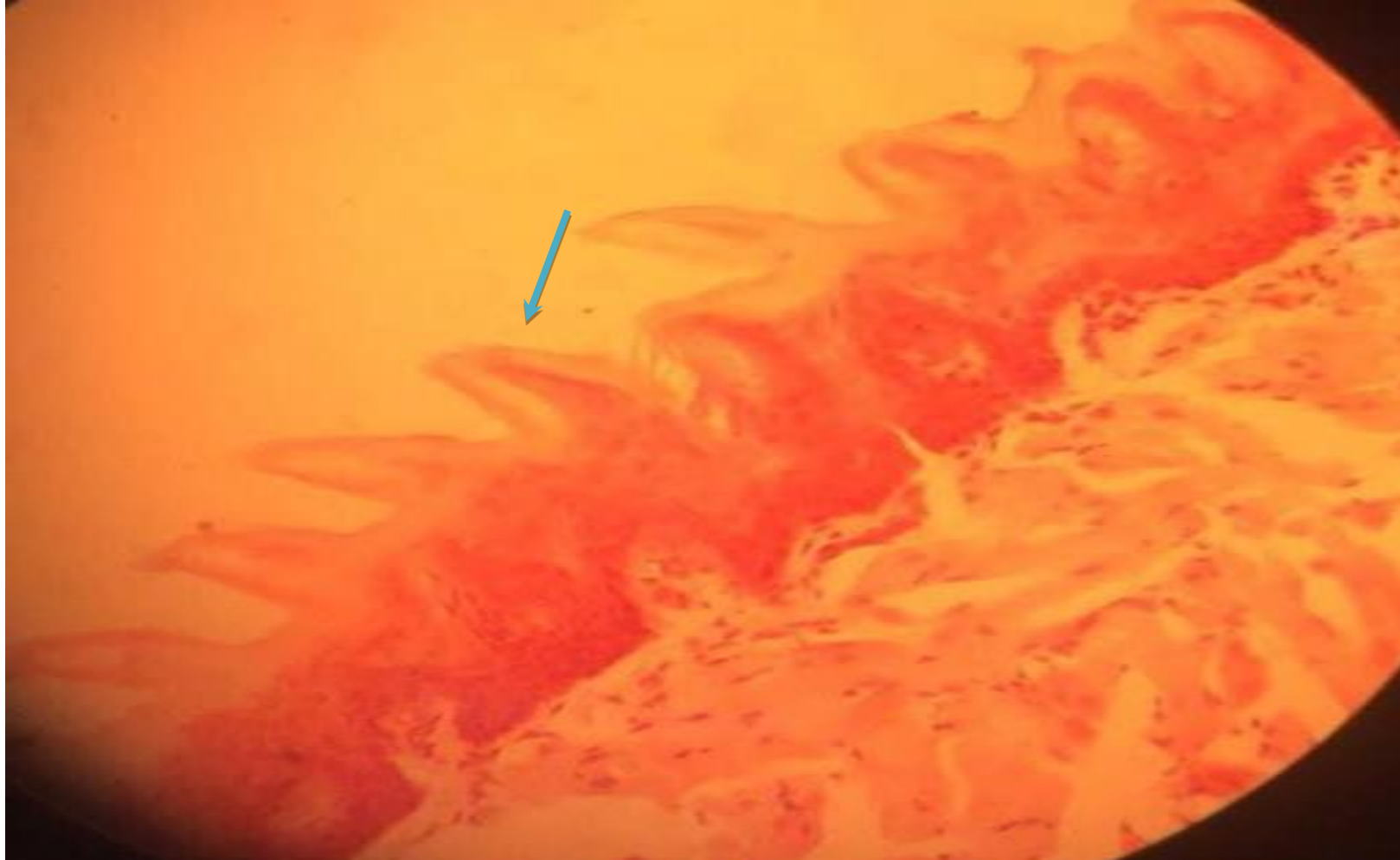
FIGURE 16.5 ▶ **Lingual papillae** — Structurally, the filiform papillae are extended, hair-pointed projections of the epithelium. They lack



Lip/ Vermilion (red) margin of the lip

1. sebaceous gland

2. Orbicularis oris muscle



pointer refer to Filiform papillae



The Tongue

Circumvallate papillae/ blue pointer refer to taste buds.//red pointer refer to Von Ebner's gland (serous gland)

The digestive system consists of oral cavity and a hollow tubular gastrointestinal tract (GIT) plus digestive glands associated with it.

The main function of the digestive system is to digest the ingested food and absorb the nutrients.

GENERAL FEATURES OF GASTROINTESTINAL TRACT

The general structure of gastrointestinal tract (GIT) starting from esophagus to anal canal is more or less same except for regional variations in the mucosal coat.

The GIT shows four distinct Layers, from inner to outer ,They are:**1. Mucosa :**

It is composed of the following three layers:

(a) Epithelium.

(b) Lamina propria – made of connective tissue containing glands and lymphoid accumulations.

(c) Muscularis mucosa – made of smooth muscle fibers; arranged in two layers, the inner circular and the outer longitudinal. This layer is responsible for movement and folding of mucosa.

2. Submucosa

- Consists of fibroblastic connective tissue.
- Contains Meissner's nerve plexus.
- May contain glands (esophagus and duodenum).

3. Muscularis externa

Composed of two layers of smooth muscle, the inner circular and the outer longitudinal. Muscularis externa is responsible for peristaltic contractions.

In the esophagus skeletal muscle is present in the upper part. Contains 'Auerbach's' nerve plexus (myenteric) and parasympathetic ganglia between the two layers of muscle.

4. Adventitia/Serosa

- Adventitia consists of only loose connective tissue without peritoneum.
- Serosa consists of peritoneum (mesothelial lining) over a layer of loose connective tissue.

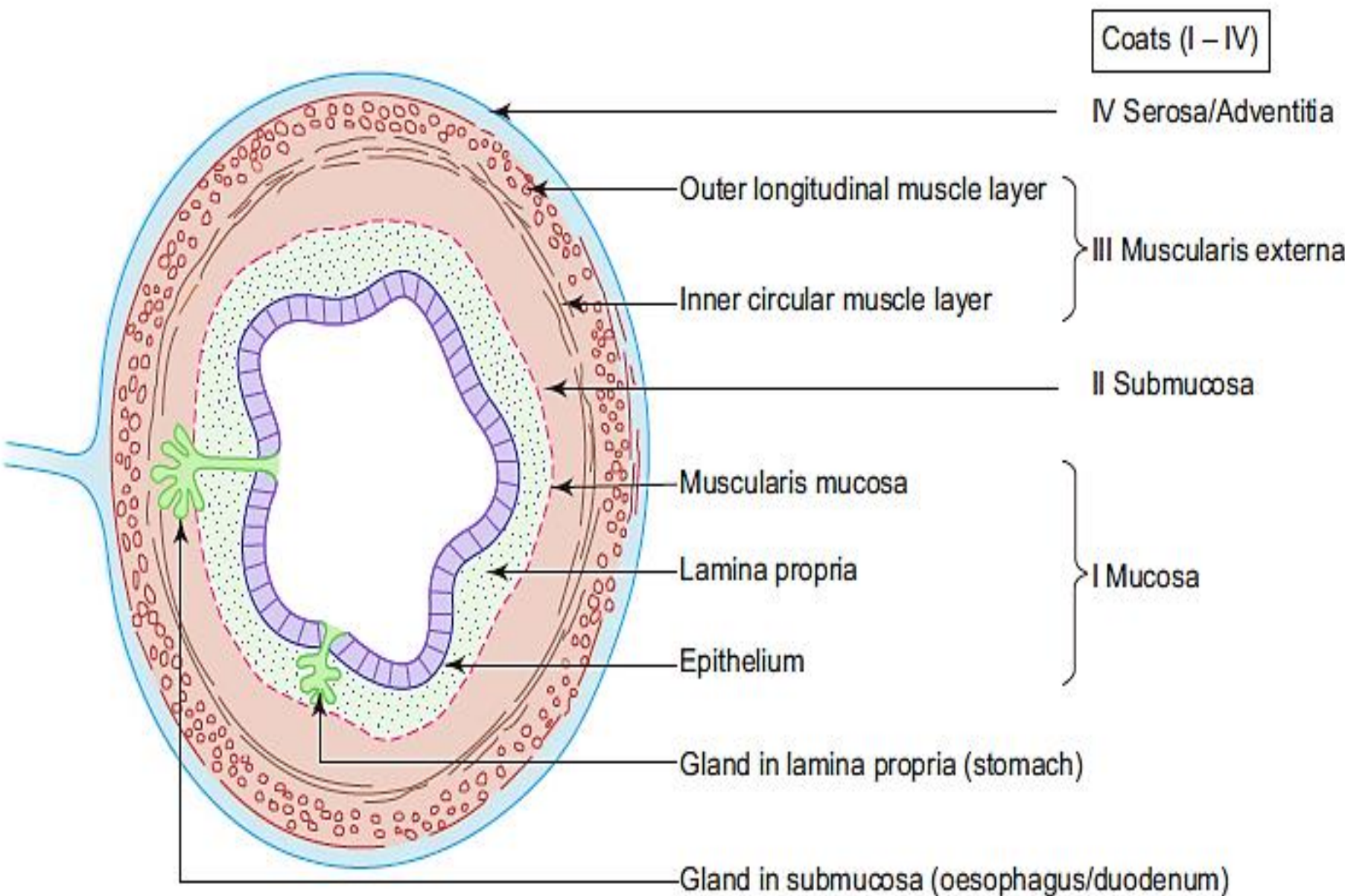


Fig. 12.6 General plan of gastrointestinal tract (GIT).

ESOPHAGUS

Esophagus is composed of four basic Layers, From inner to outer they are:

1. Mucosa

It is composed of the following three layers:

- (a) Epithelium – stratified squamous Nonkeratinized epithelium.
- (b) Lamina propria – contains esophageal cardiac glands in the lower part of esophagus.
- (c) *Muscularis mucosa* – is made of single longitudinal layer of smooth muscle. (No circular layer.)

2. Submucosa.

The **submucosa** consists of

dense irregular C.T. that contains the larger blood and lymphatic vessels, (Meissner's plexus) of nerve fibers. In addition, diffuse lymphatic tissue and lymphatic nodules are present mostly in the upper and lower parts of the esophagus where submucosal glands are more prevalent.

Also, It contains esophageal glands proper (mucous) at terminal part of esophagus .(why)?

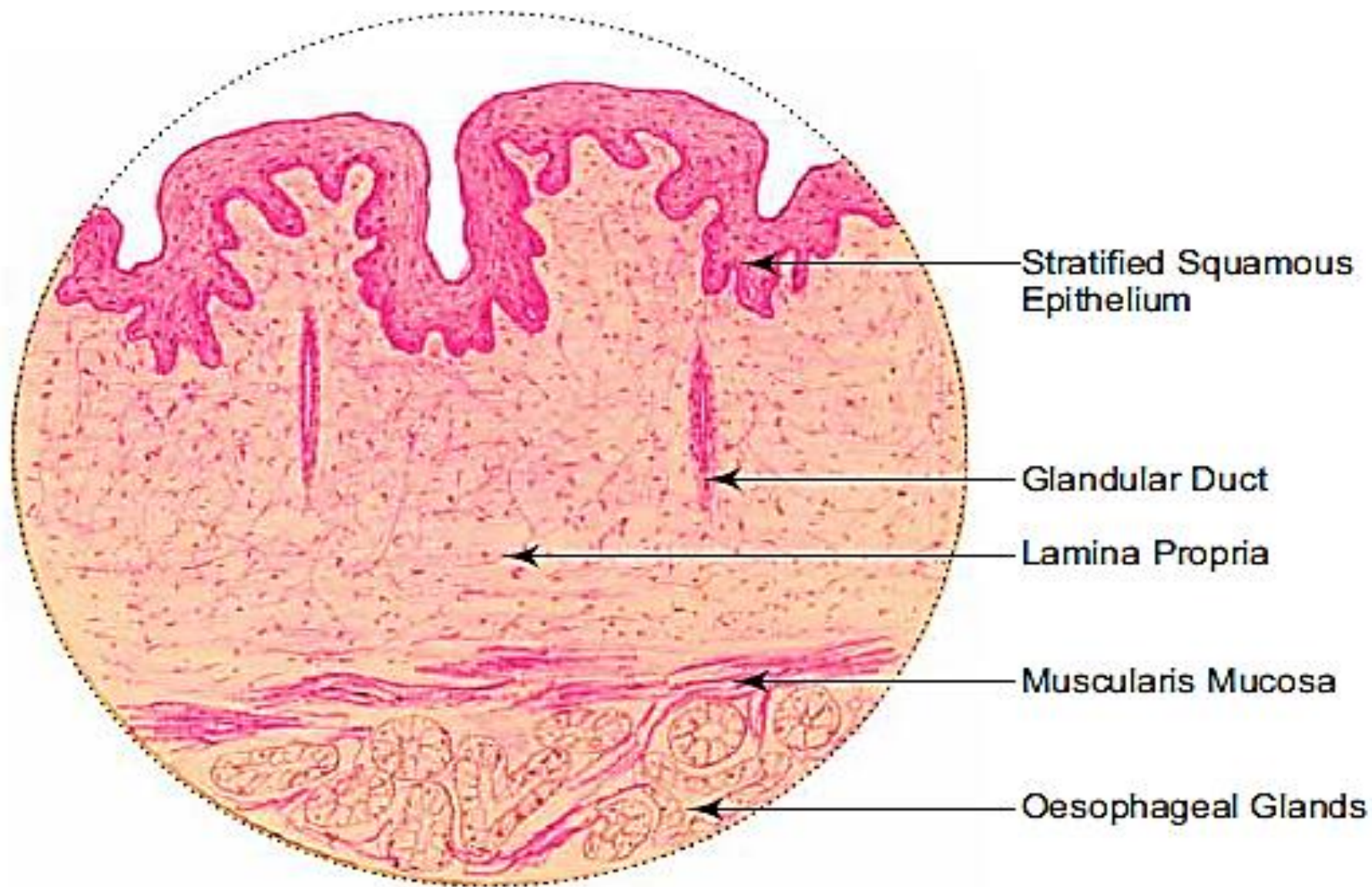
3. Muscularis externa

It is made of muscles of following types; arranged into 2 layers : inner circular and outer longitudinal layers:

- Upper one-third of esophagus(upper part): skeletal muscle.
- Middle one-third of esophagus: skeletal and smooth M.
- Lower one-third of esophagus(lower part): smooth muscle.

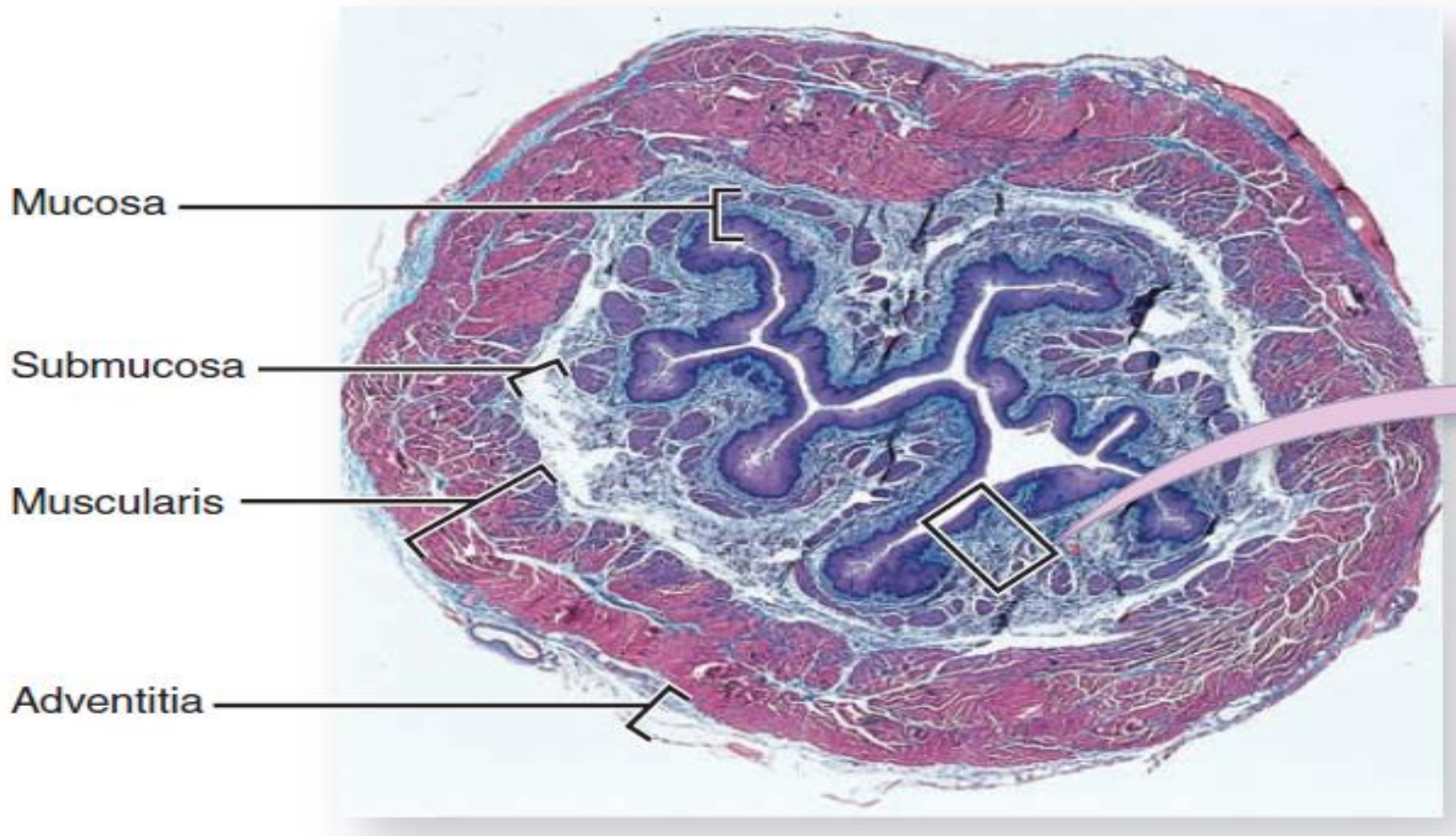
4. Serosa or adventitia: serosa consists of c.t layer that is lined by s.s layer mesothelium.

* in the upper esophagus the adventitia that surround the esophagus, in the thoracic region consists only of c.t layer.



Oesophagus

FIGURE 15-12 Esophagus.



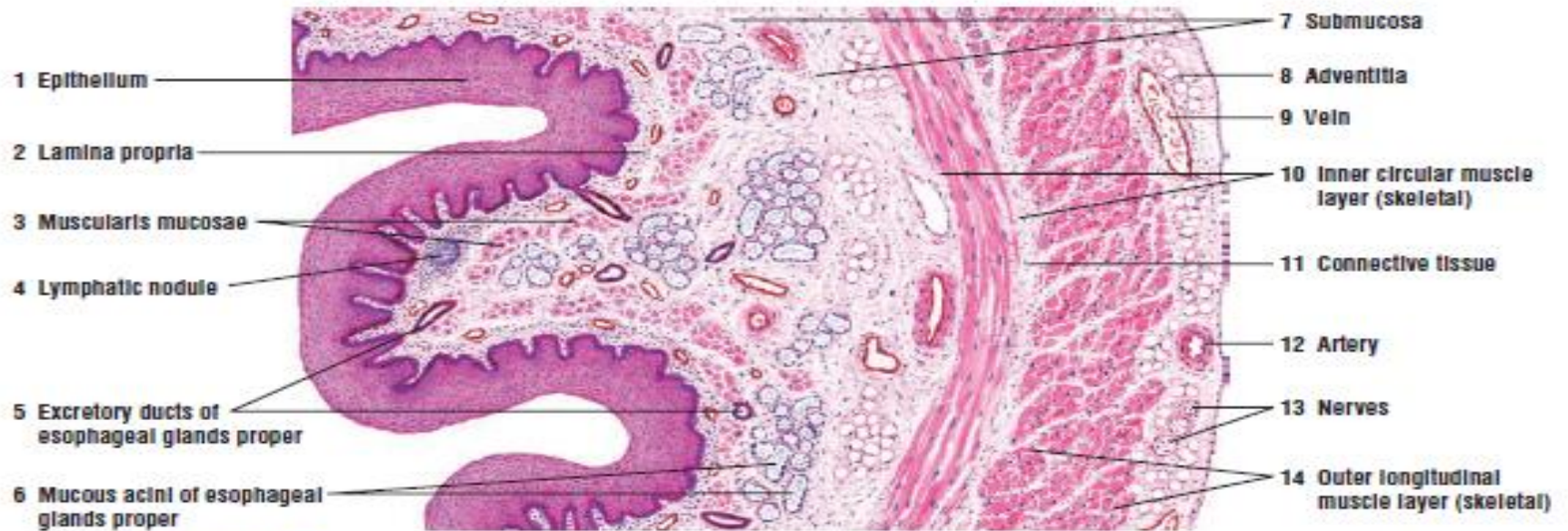


FIGURE 12.2 ■ Upper esophagus (transverse section). Stain: hematoxylin and eosin. Low magnification.

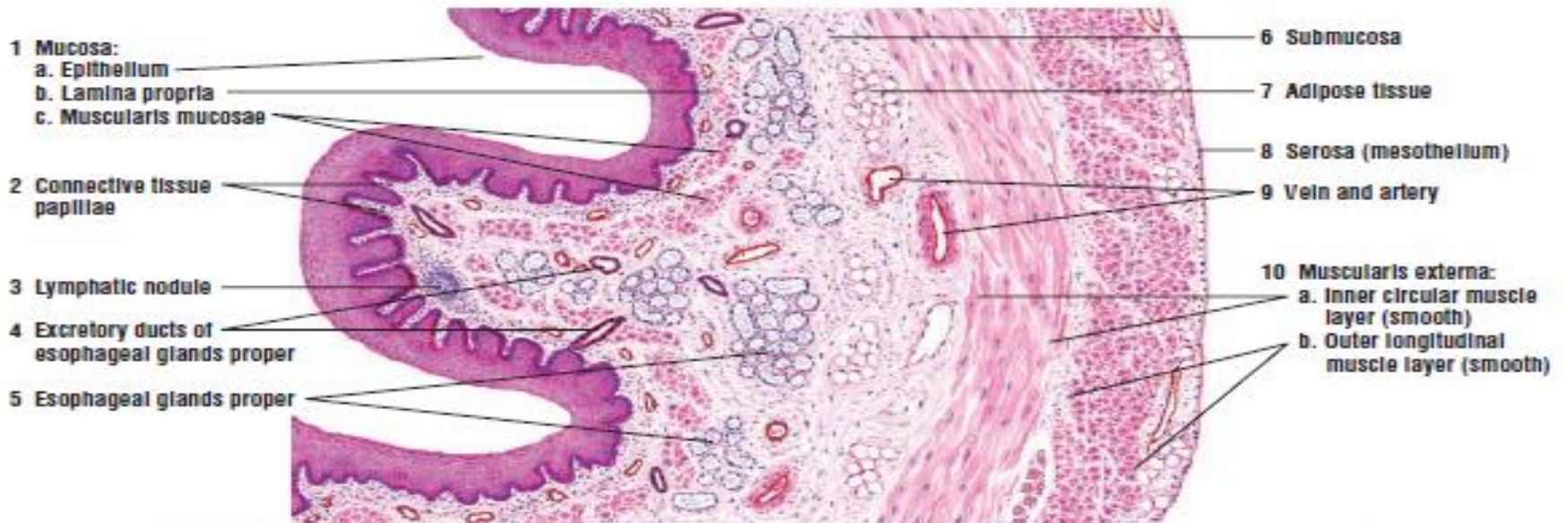


FIGURE 12.3 ■ Lower esophagus (transverse section). Stain: hematoxylin and eosin. Low magnification.

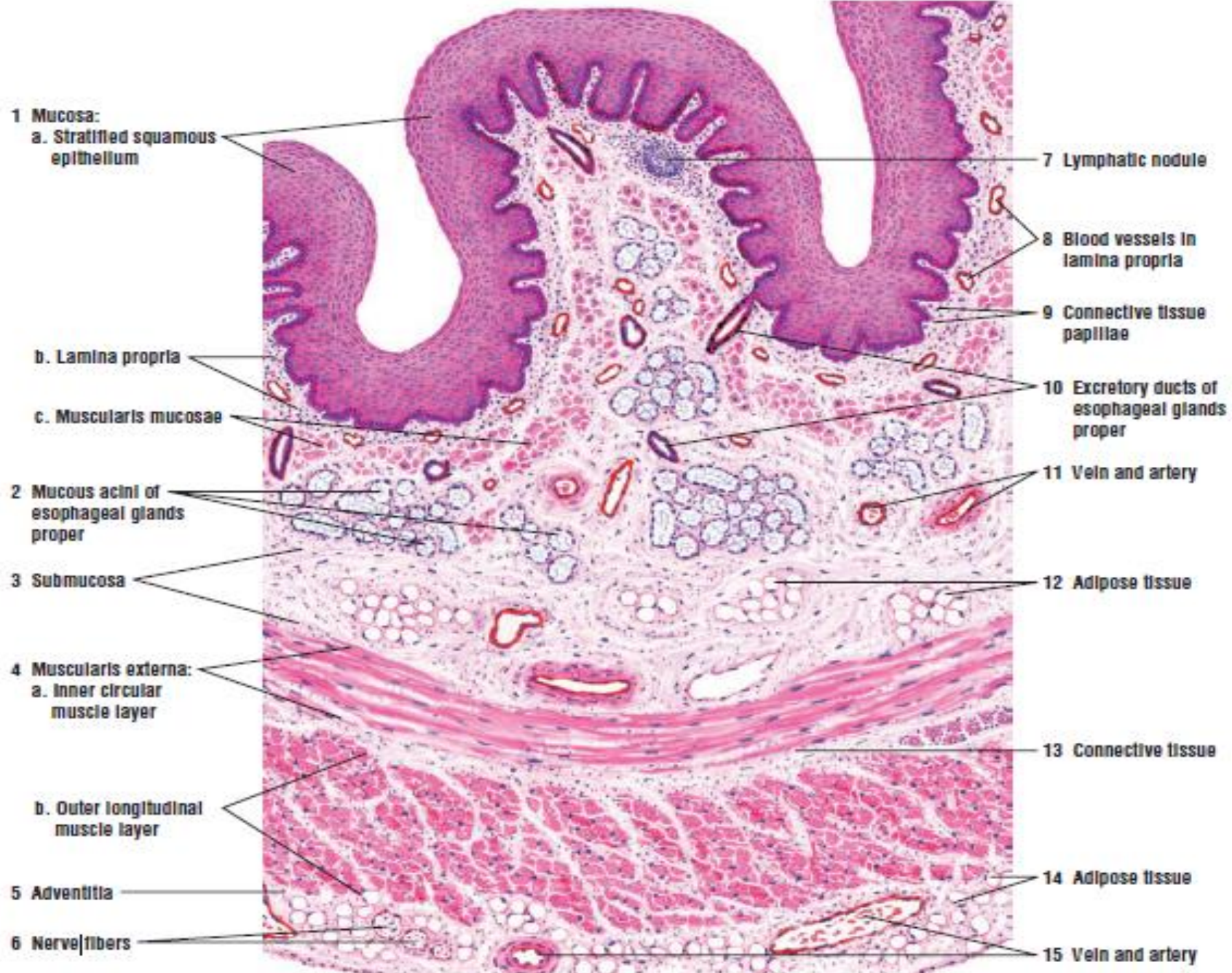


FIGURE 12.1 ■ Wall of upper esophagus (transverse section). Stain: hematoxylin and eosin. Low magnification.

There are two types of glands in the wall of the esophagus

- . The **esophageal cardiac glands** are present in the lamina propria of lower region of the esophagus (esophagus near stomach , esophageal -stomach junction)
- **Esophageal glands proper** are located in the connective tissue of the submucosa.
- Both types of glands produce the secretory product **mucus**, which is conducted in **excretory ducts** through the epithelium to lubricate the esophageal lumen.

**Thanks for
your attention**