GI Histology Lab 1

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Lip

ORAL MUCOSA
-Arrow shows labial salivary glands in the submucosa.

VERMILLION
transitional zone.

SKIN
Stratified Squamous epithelium, keratinized

-Arrow shows: Hair follicles.
- Also note the sebaceous glands & sweat glands.

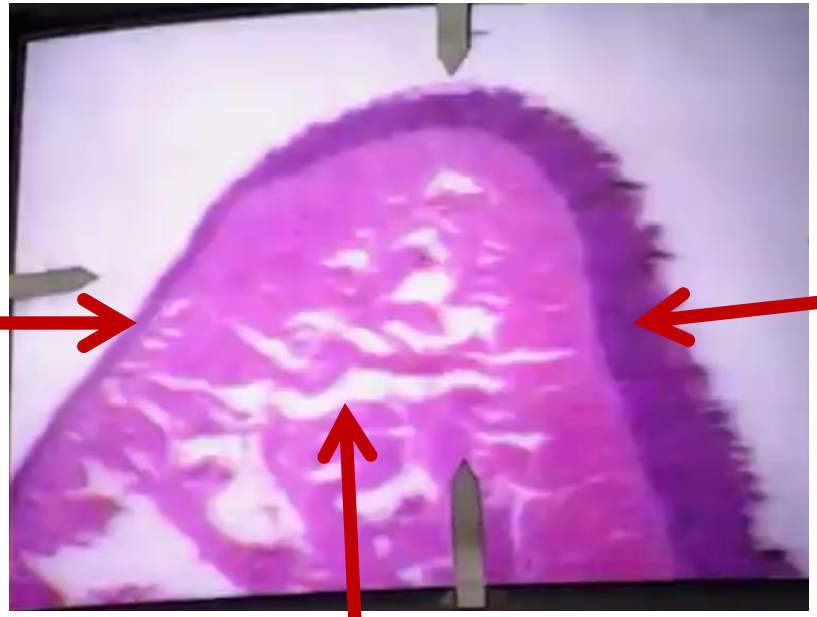
CORE
stratified skeletal muscles Orbicularis Oris

Notes about the Lip

- The vermilion border is red because the epithelium layer is thin and there are connective tissue papillae projecting into the epithelium, which are loaded with blood vessels and nerve endings.
- The vermilion border is a transitional zone of modified skin, so there are no hair follicles, sebaceous or sweat glands. This is why it is prone to dryness and chapping.
- The skeletal muscles which form the core of the lip can be recognized upon higher magnification since there would be flattened peripheral nuclei.

Tongue

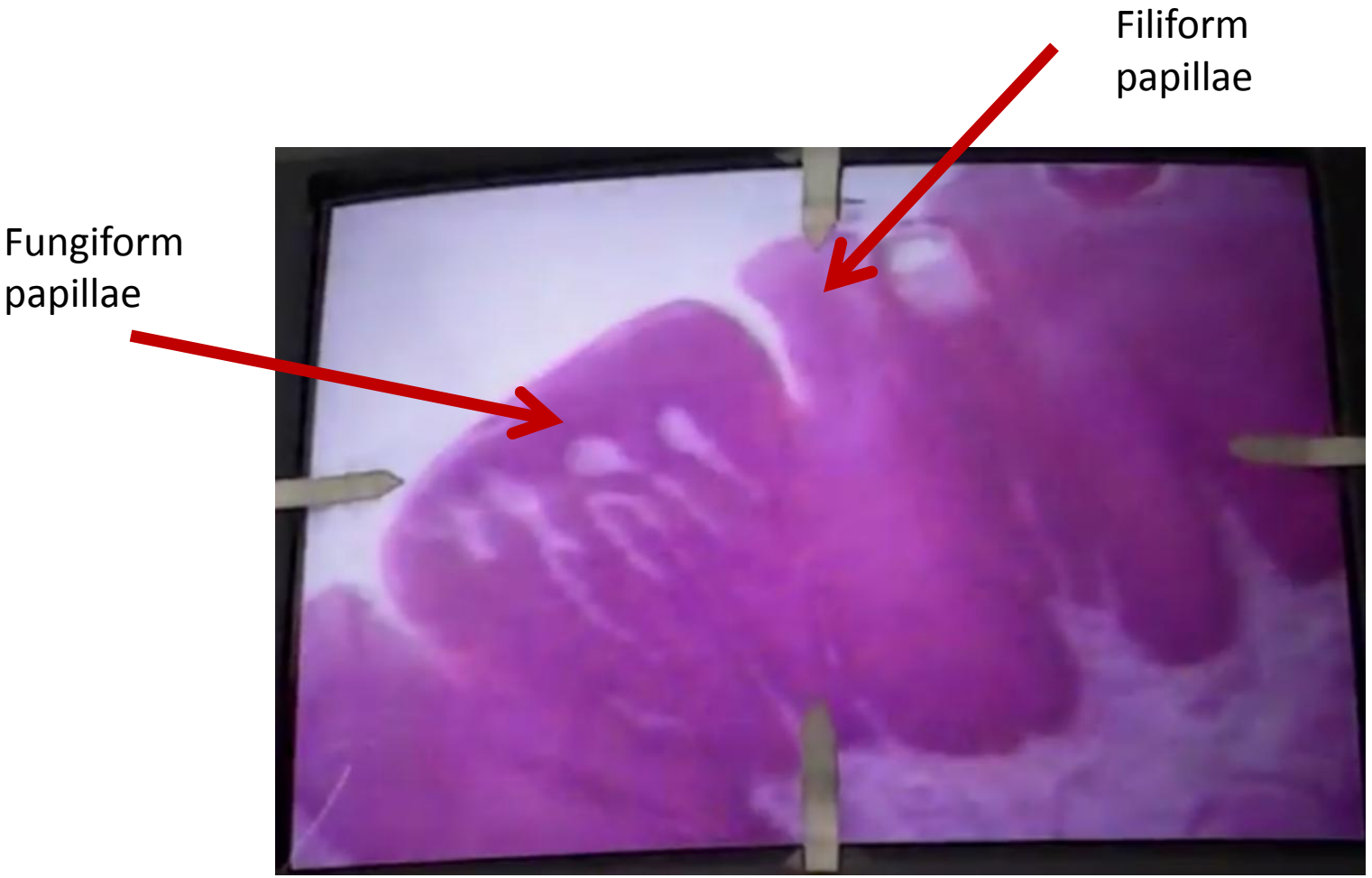
Ventral surface of the tongue (non-keratinized stratified squamous epithelium) connected to floor of mouth by loose connective tissue.
- Short connective tissue papillae versus long on dorsum.



Dorsum of tongue (parakeratinized stratified squamous epithelium) showing the filiform papillae

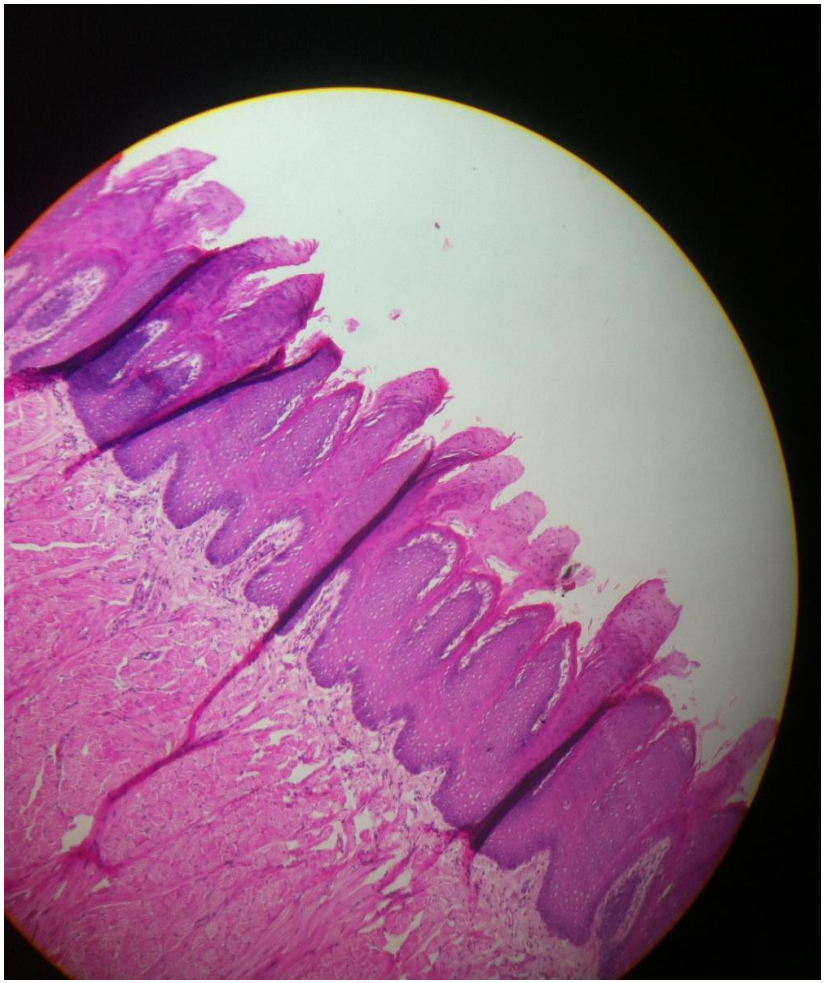
Core of tongue striated muscle mostly showing intrinsic muscles

Tongue Section



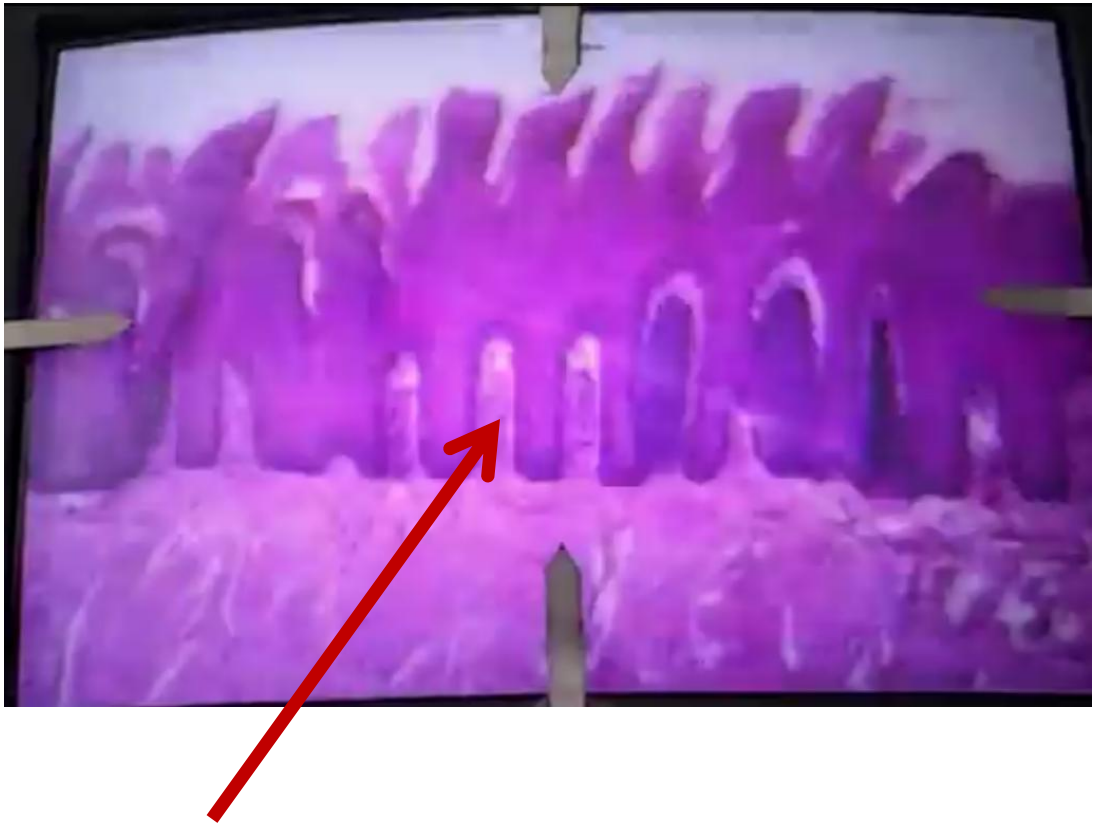
Filiform Papillae Sections

No Taste Buds.



Filiform Papillae 2

Stratified squamous parakeratinized epithelium

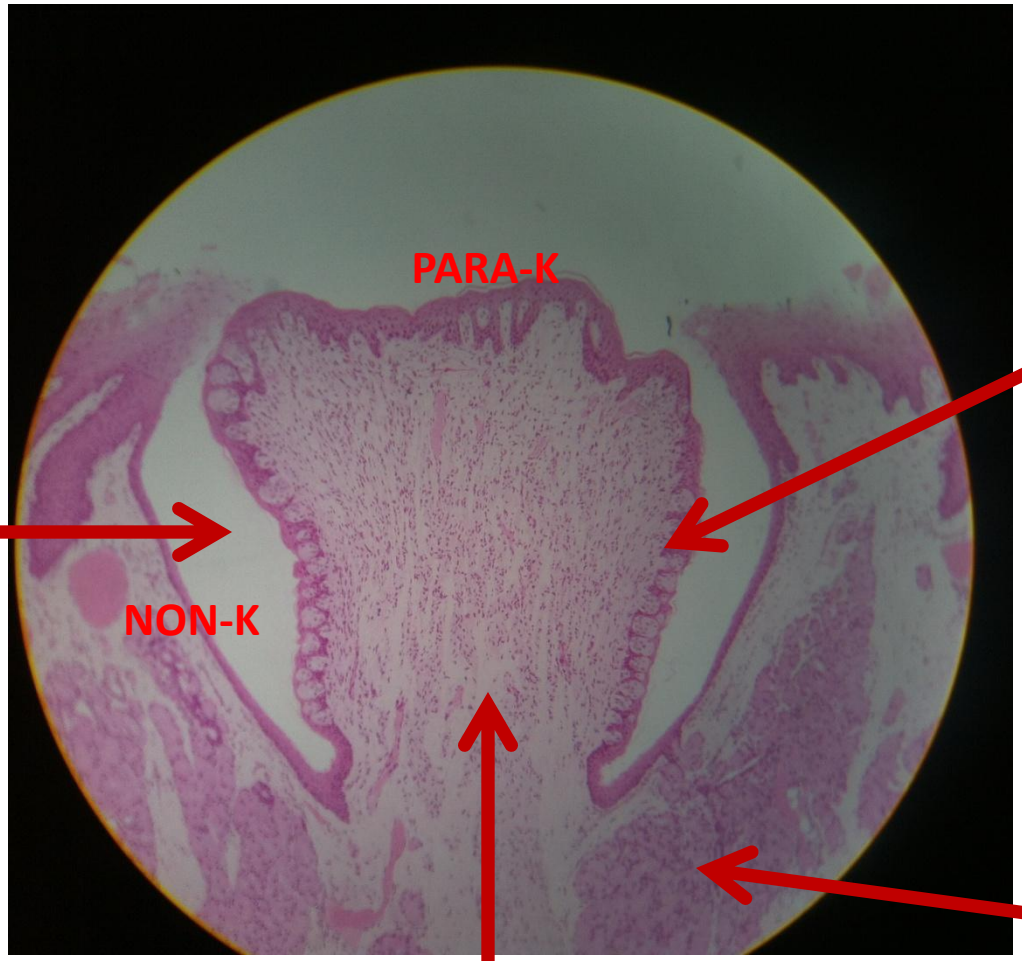


Connective Tissue Papillae which projects into the epithelium and delivers blood supply, nerve supply and lymph vessels

Circumvallate Papillae

For bitter taste.

Grooves/clefts around the papillae.
-Medial surface of cleft has taste buds (lateral of papillae)
- Lateral side of cleft non-keratinized unlike the papillae itself which is para-keratinized since its on the dorsum of the tongue.



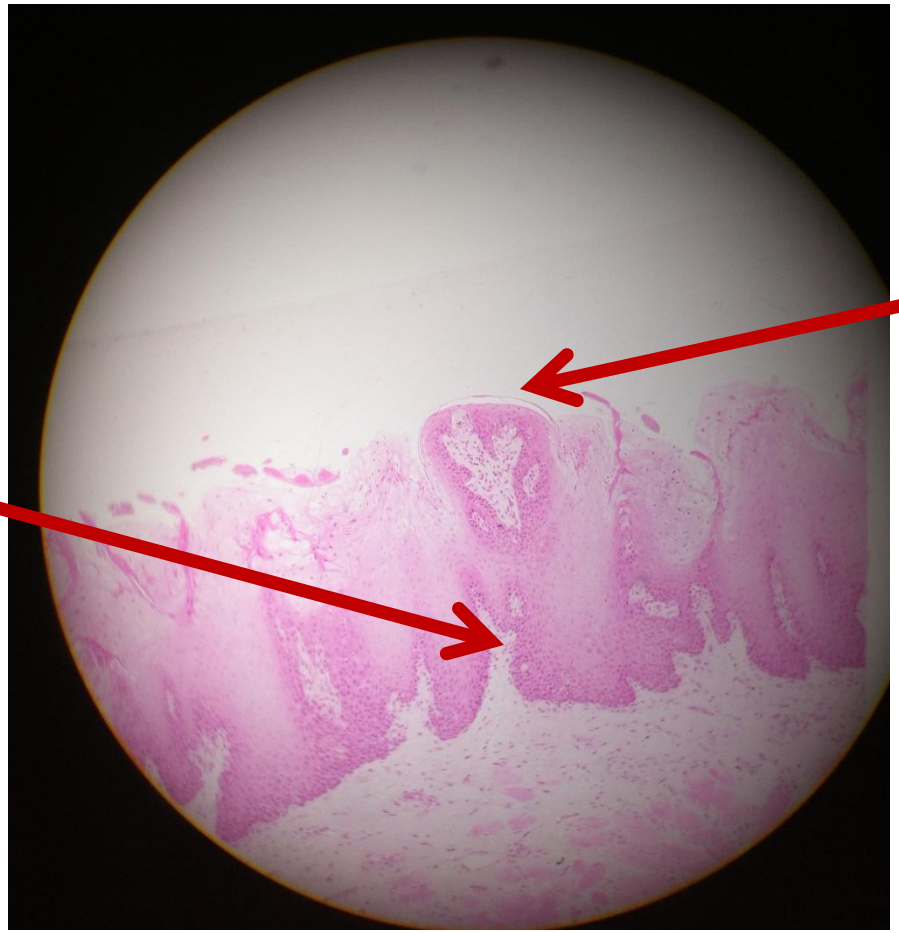
Taste Buds on the lateral sides of the papillae

Von Ebner's Gland (Serous gland) its duct opens in the bottom of cleft. ONLY PRESENT HERE.

Connective Tissue Papillae and striated muscle core

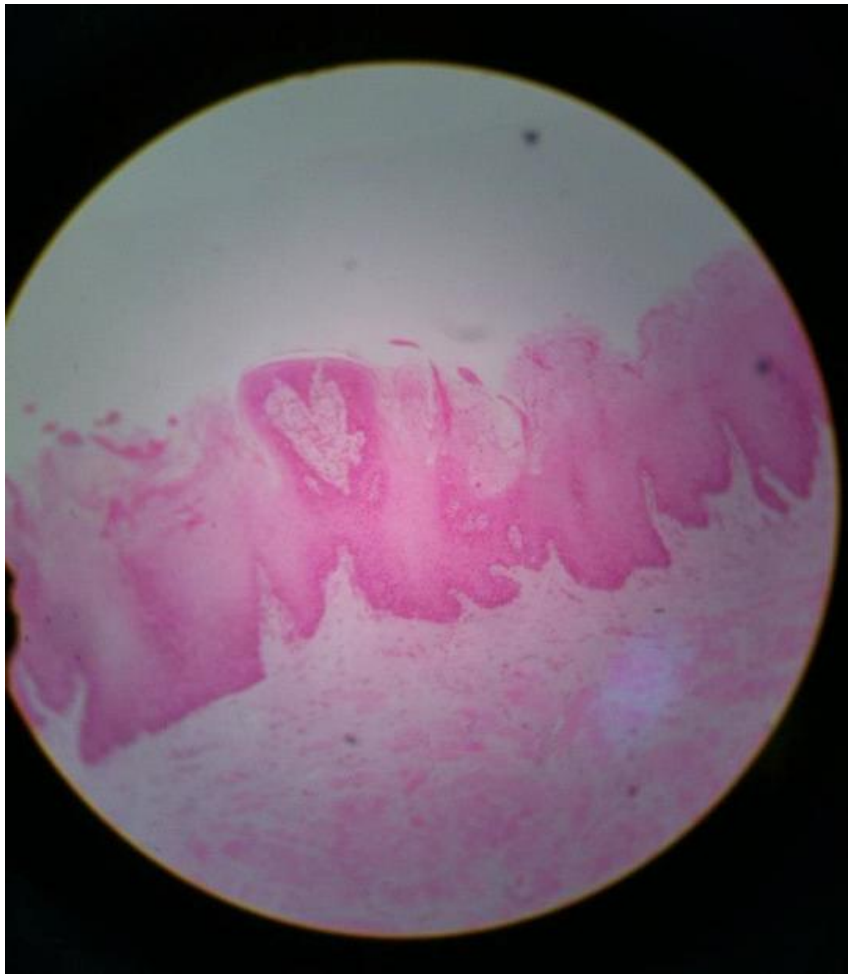
Fungiform Papillae

Connective Tissue Papillae projecting into the fungiform papillae

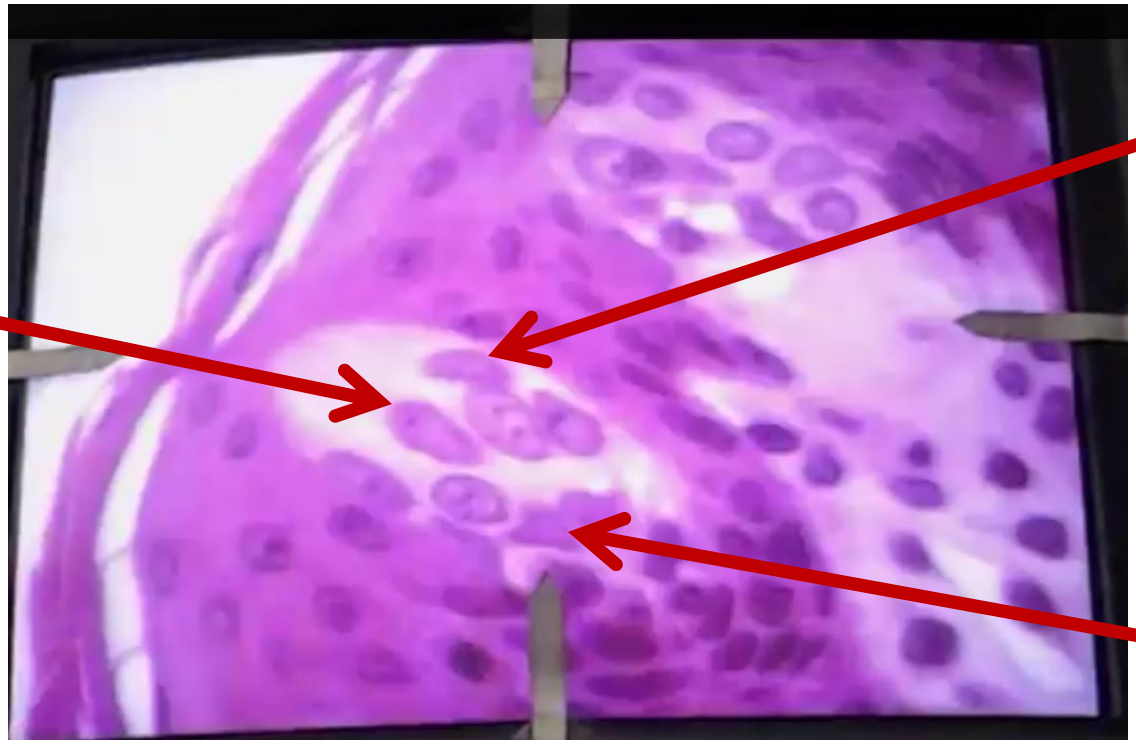


The taste buds in this papillae are present on their upper part/dorsum.

Fungiform Papillae section 2



Taste Bud Magnified

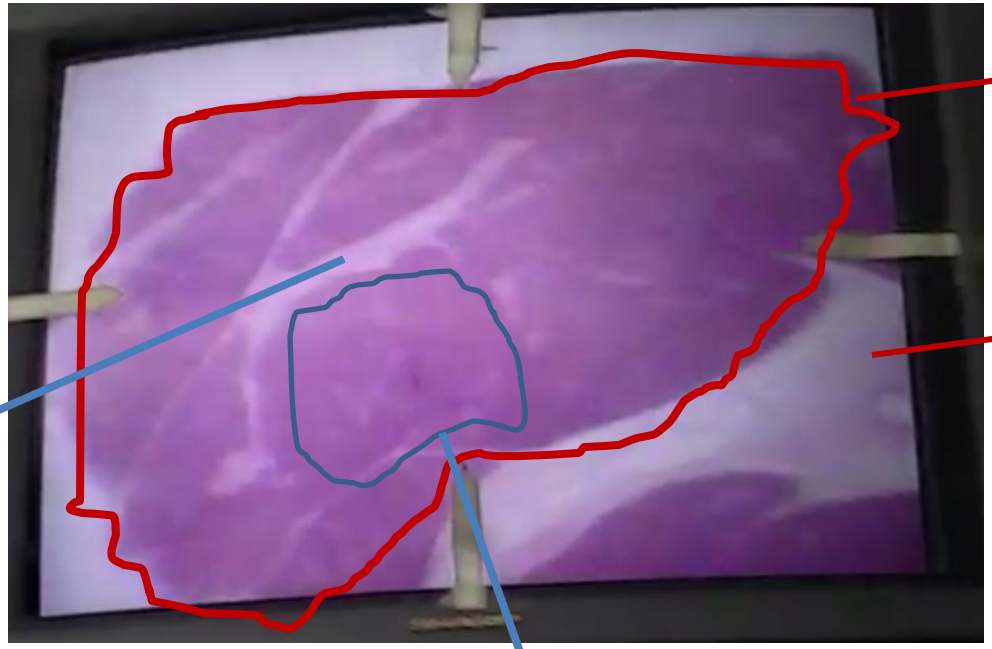


Gastatory cell
-In the middle
-Dark nucleus.

Sustentacular supporting cell (on sides/ lateral)

Stem Cell (near base)

Parotid Gland Unmagnified



Lobe

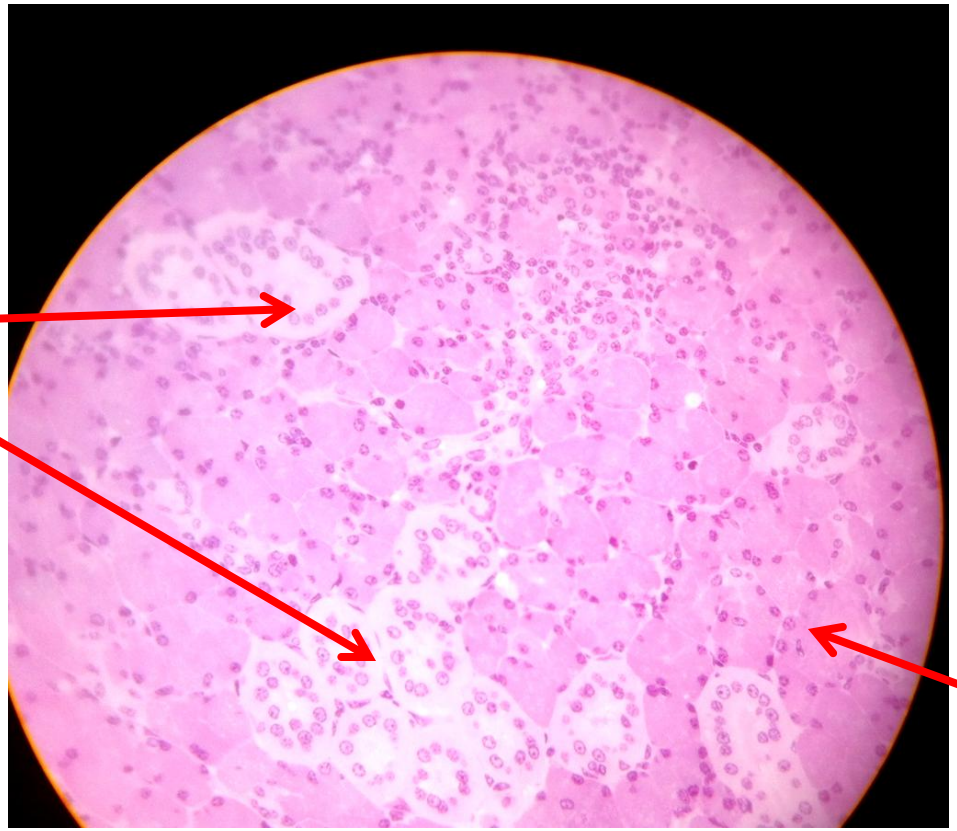
Interlobar Duct (between lobes)

Interlobular Duct (between lobules)

Lobule contains Intralobular ducts (inside lobule) which are of 2 types: Intercalated and striated

Parotid Gland Section 1

Striated Ducts



- Mostly serous secretions.
-Compound tubuloalveolar glands.
- Has intercalated and striated ducts.

Serous acini

Parotid Gland Section 2

Parotid Gland Section 3

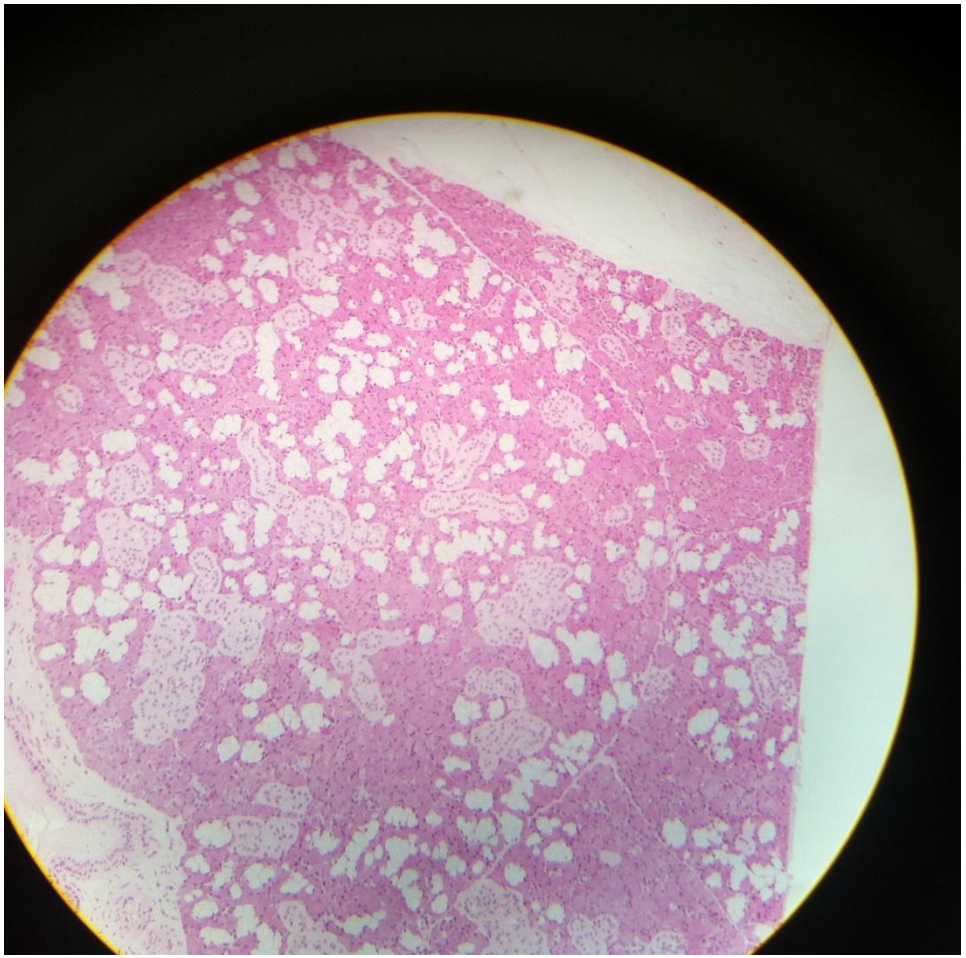
Intercalated Duct (number of cells around it less than 10, about 5-6)

Notes about the histology of the parotid gland

- Serous acini have the following features
  - Spherical nuclei near the base
  - Ill-defined boundaries between cells
  - Narrow lumen
- Intralobular (not interlobar) ducts (meaning inside a lobule) include the intercalated and striated ducts.
  - Intercalated ducts have 5-6 simple cuboidal cells around it.
  - Striated ducts have more than 10 simple cuboidal cells around it. The striated duct connects the smaller intercalated duct to the larger interlobular duct.
    - If we use an electron microscope, the reason why it is called a striated duct becomes evident as there are foldings of basement membrane and there are basal elongated mitochondria.
- All 3 pairs salivary glands are compounds tubuloalveolar glands.
- The cell in the acini are simple cuboidal, they then become stratified cuboidal (spherical), then stratified columnar (elongated) as we move distal.
- Pathway: Acinus to intercalated duct to striated duct to interlobular duct to interlobar duct. At the opening of the parotid duct in the oral cavity; the cells lining the duct are stratified squamous.

Submandibular Gland Section 1

- White: mucus acini.
-Dark purple: Serous acini.
- Faint purple/ pink: Duct system



-Serous and mucus (mixed secretions)
- Compound tubuloalveolar glands.
- Complicated duct system.
- Many striated ducts, rare intercalated.
- Serous Demilune.

Submandibular Gland section 2

Serous Demilune

Nucleus of basket myoepithelial cell (squeezed under basement membrane)

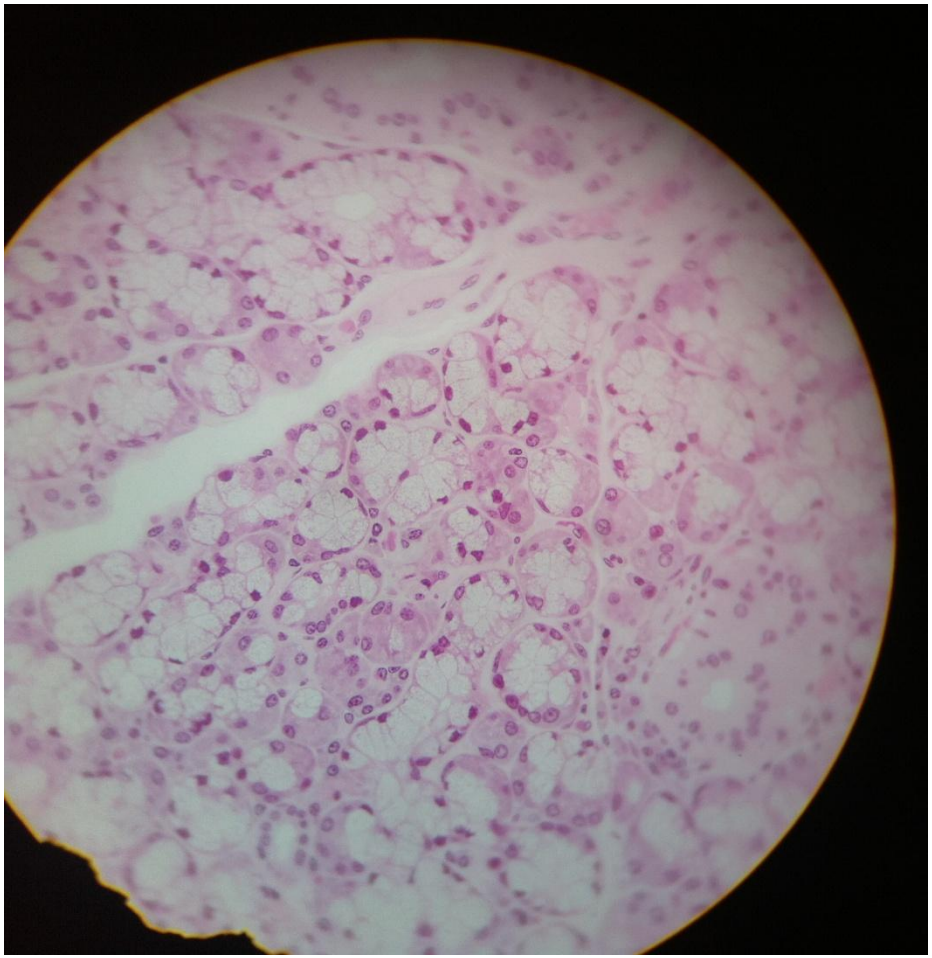
Duct System: striated ducts (numerous)

Foamy white vacuolated appearance of **Mucus** acini.

Serous acini

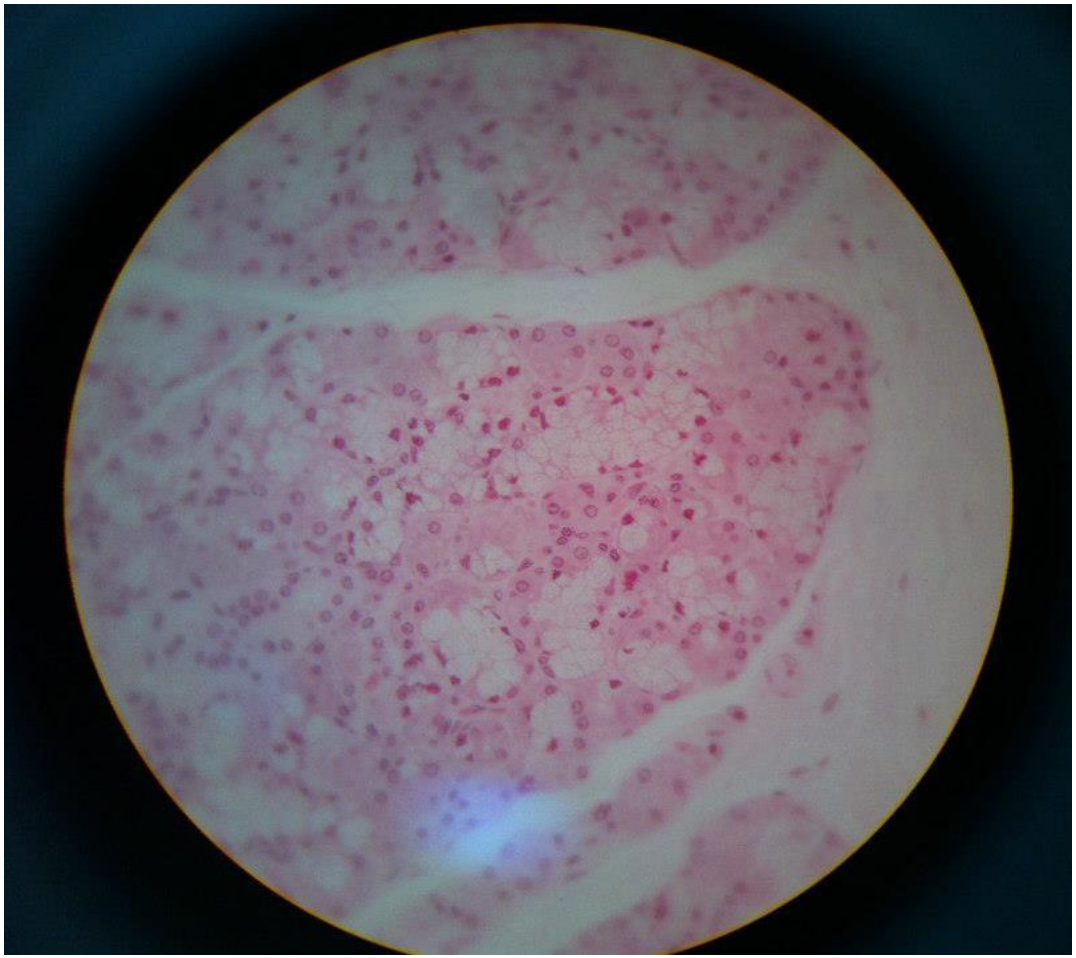
- Mucus Acini defining characteristics
  - Well-defined boundaries between cells.
  - Wide Lumen
  - Flattened basal nuclei
- Serous Demilune: the serous capping (purple) over the mucus acini (white).

Sublingual Gland Section 1

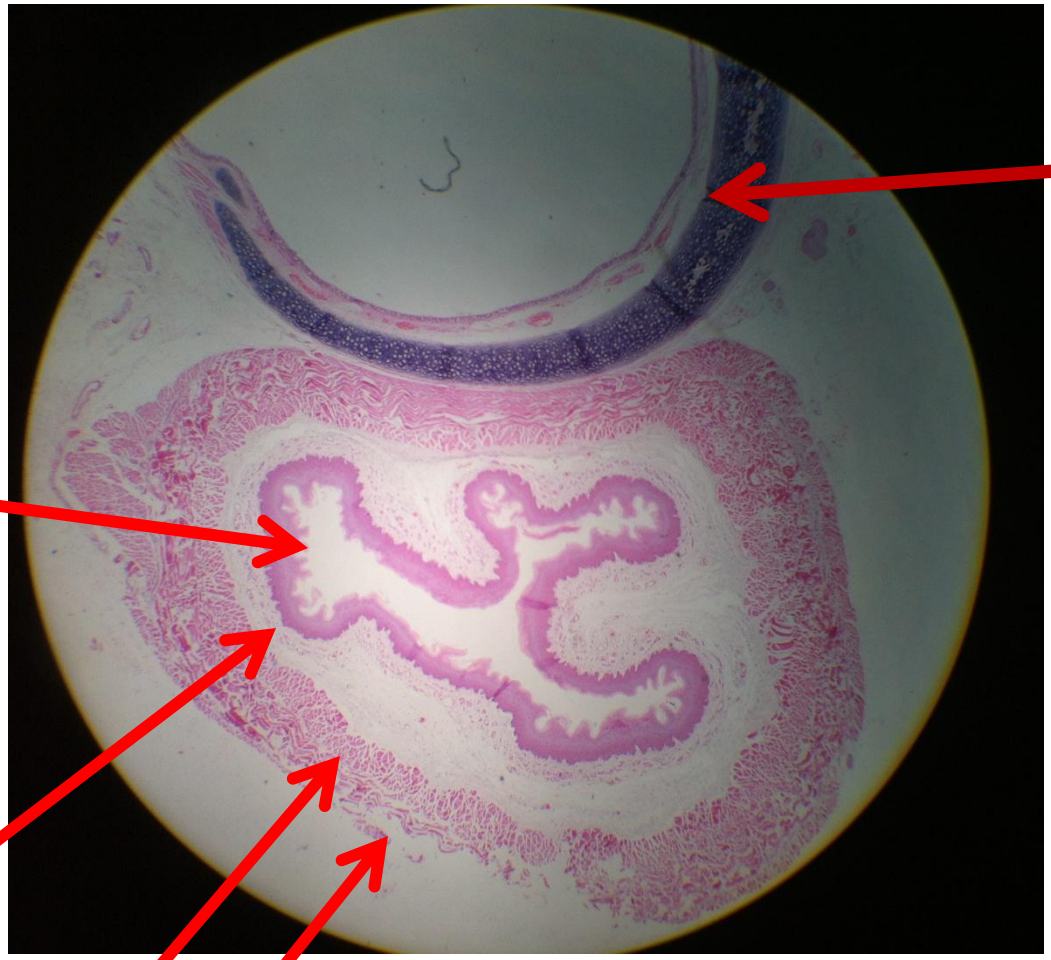


-Mostly mucus secretion.
-Non complicated duct system.
- Some striated ducts can be seen.
- Small amount of Serous Demilune but present.

Sublingual Gland Section 2



Transverse Section of Esophagus (upper part)



Trachea

*Esophagus is posterior to trachea

Mucosa: Star shaped and closed lumen until deglutition of bolus

Type of muscle present is striated skeletal muscles, since this is the upper 1/3. Middle is mixed striated and smooth. Lower is smooth muscle.

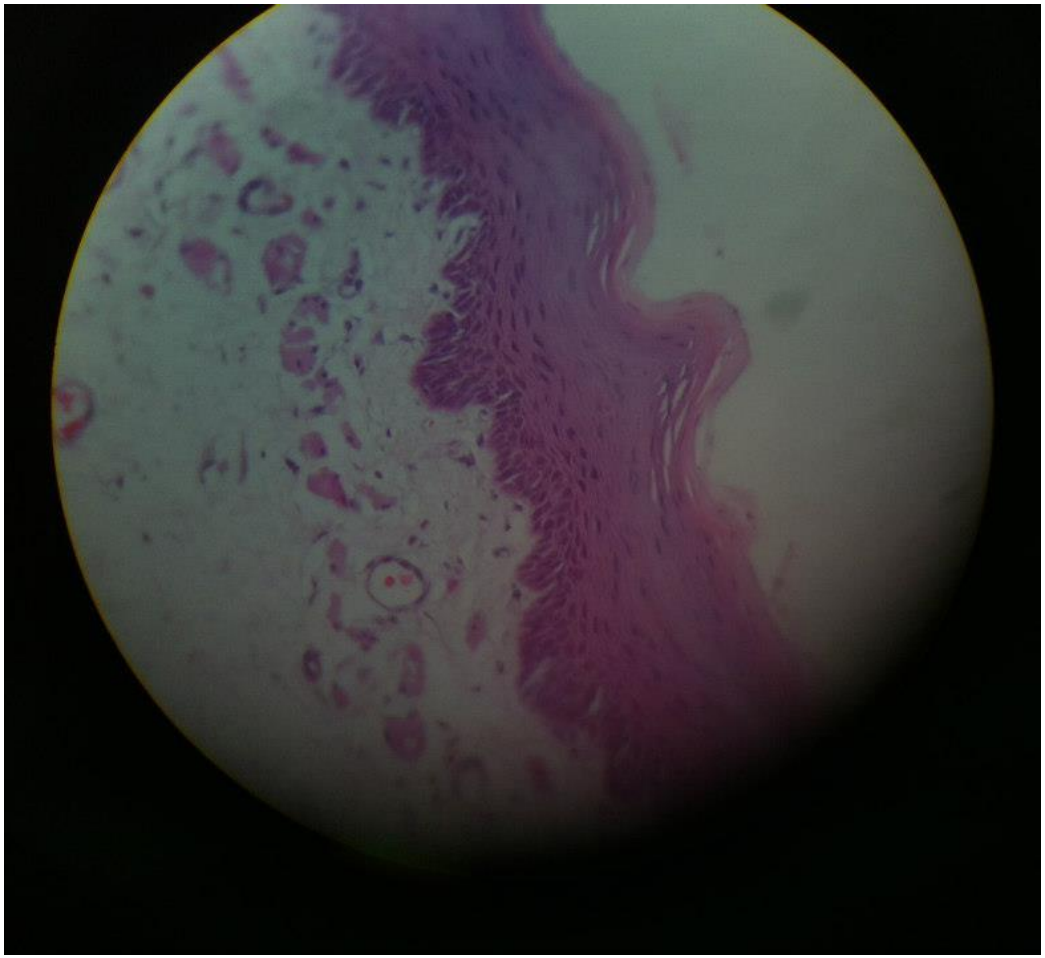
Submucosa

Muscularis Externae

Adventitia

Esophagus upper 1/3 section 2

Lining epithelium stratified squamous non-keratinized

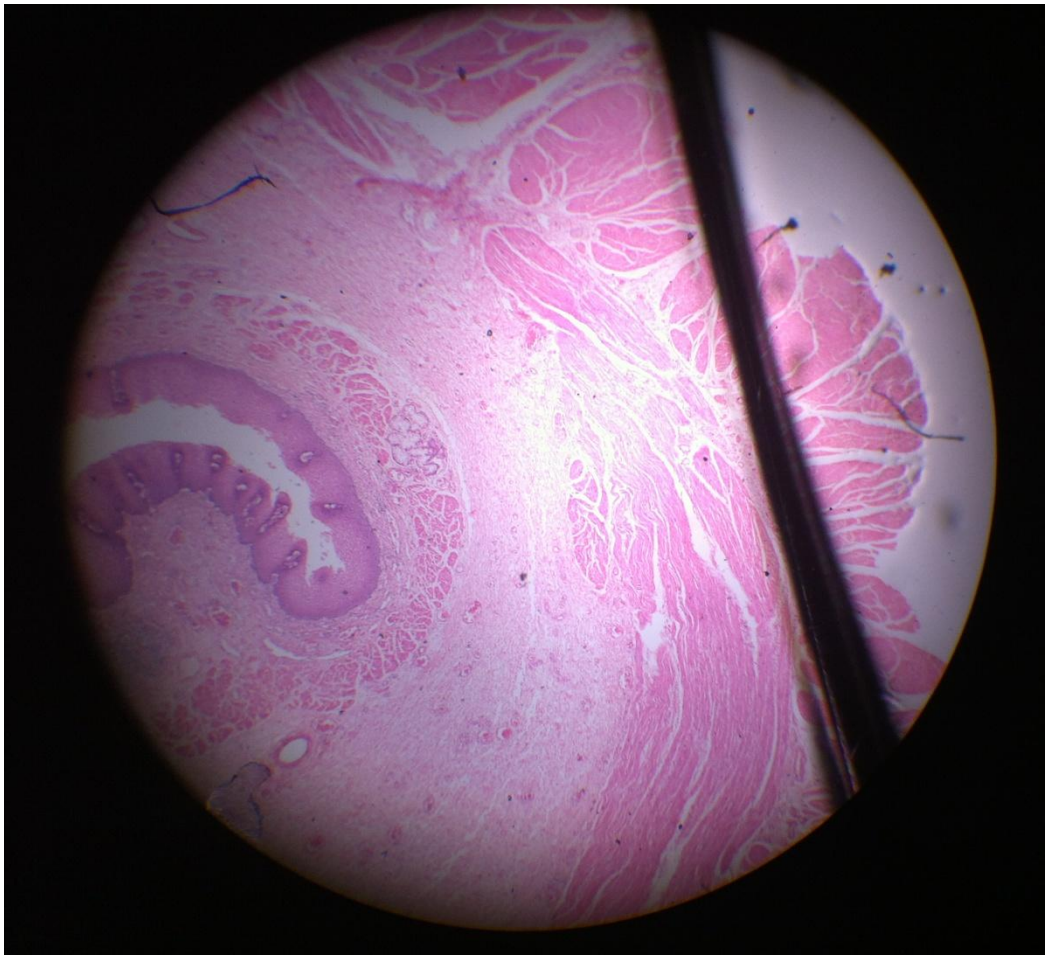


2 organs with glands in submucosa are duodenum and esophagus

Esophagus Section

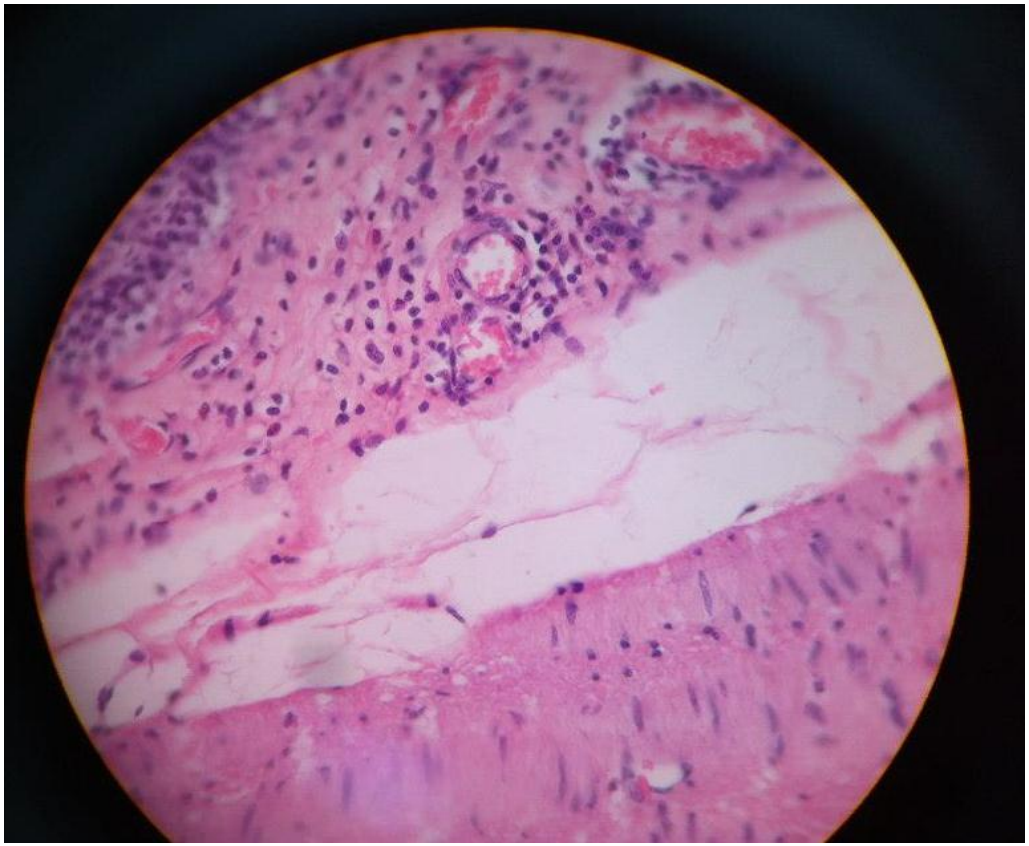
-Esophageal Gland Proper in submucosa
- Parasympathetic ganglion / Myenteric plexus

Esophagus Lower 1/3 just above the esophagogastric junction



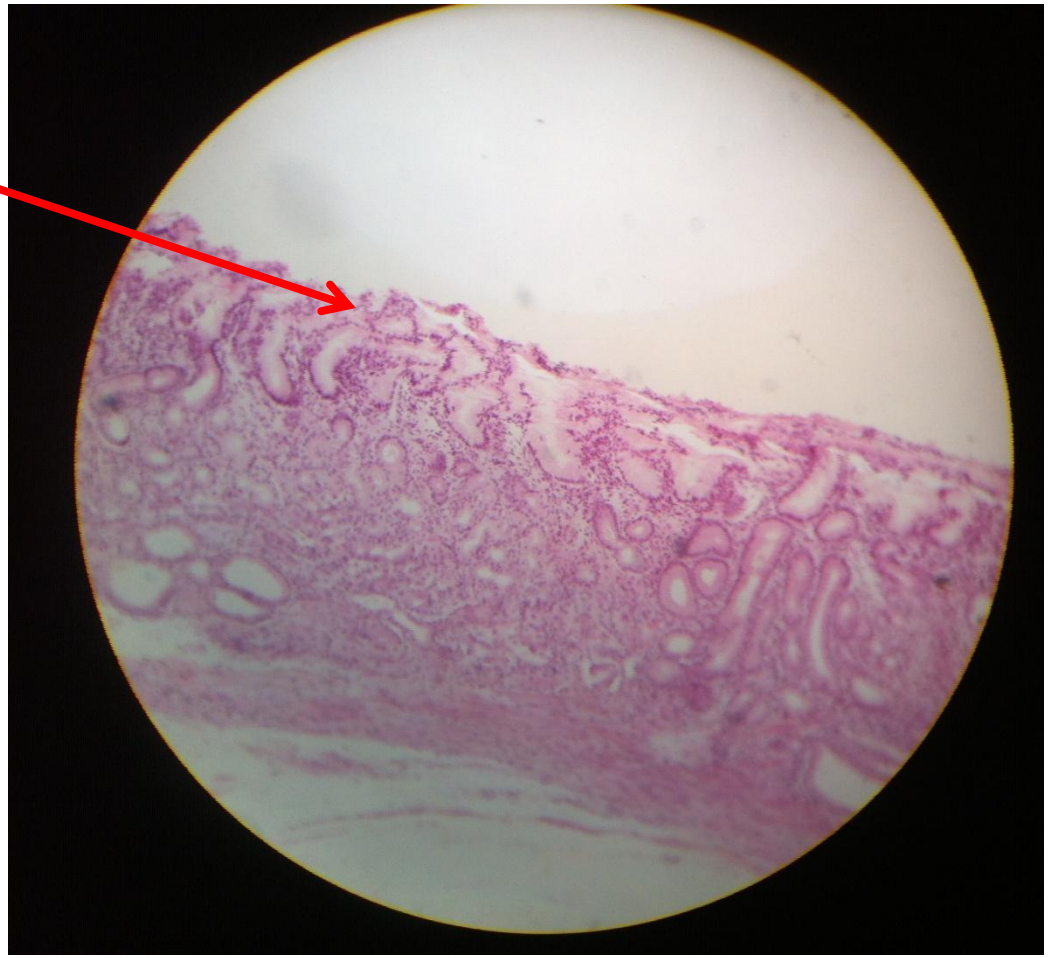
-Esophageal gland proper in the submucosa.
- Myenteric / Aeurbach's plexus
-Lamina propria contains lymphoid aggregations that increase distally
-Smooth muscle since spindle in shaped and nuclei central

Esophagus Lower 1/3 before cardia Section 2



Gastro-esophageal Junction

Gastric pits as we go distally into the stomach

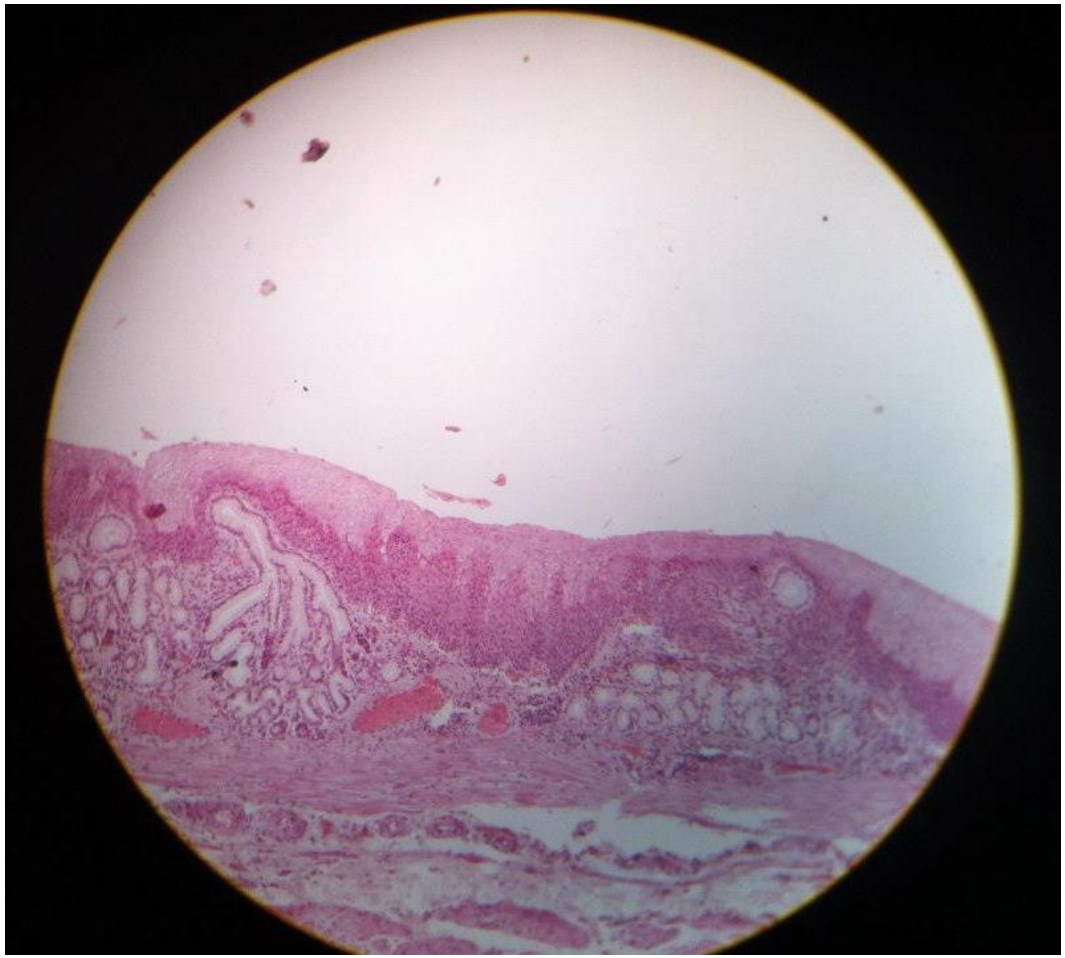


- Note: Cardiac gland in lamina propria.
- Physiological sphincter not anatomical.

Changes:
1- Stratified squamous non-keratinized to simple columnar epithelium
2- Gland becomes in lamina propria

Gastro-Esophageal Junction Section 2

Junction is common site for cancer thus changes in epithelium are important.



Best of Luck!