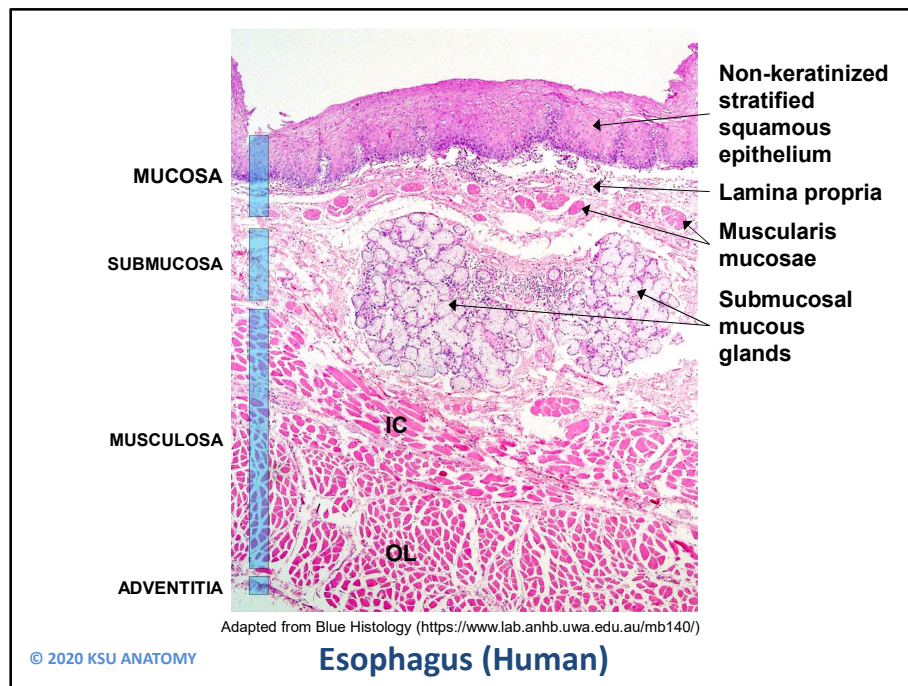




This is the Histology Practical Lab of Esophagus and Stomach.



This is a section in the human esophagus. We can see the classic four layers of the general plan of the alimentary canal; mucosa, submucosa, muscularis, and adventitia or serosa.

Mucosa: The most characteristic thing about the esophagus is that its epithelial lining is non-keratinized stratified squamous epithelium.

Submucosa: contains mucous glands .

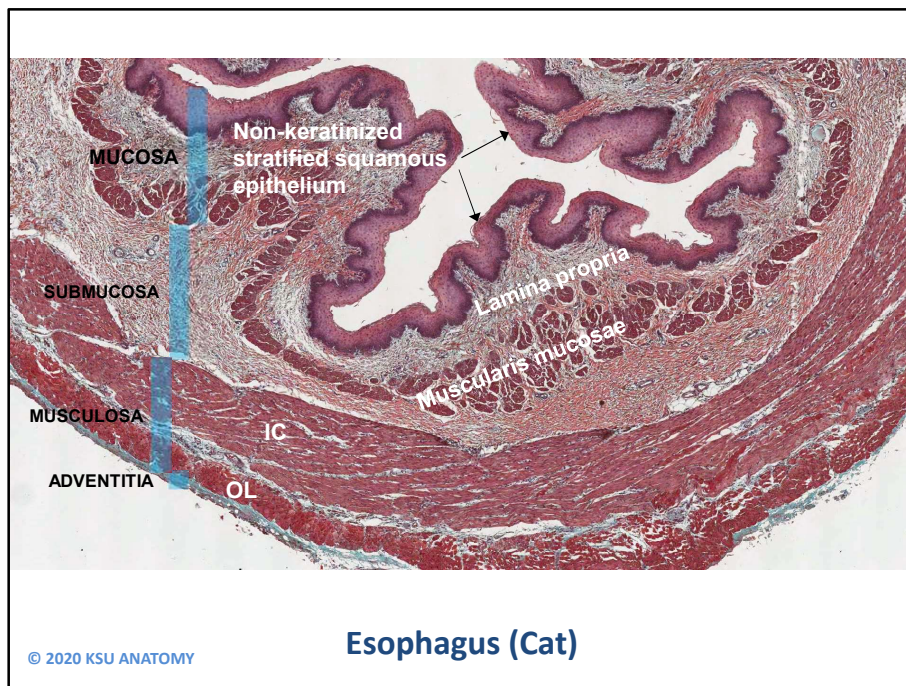
Musculosa: two layers; inner circular (IC) and outer longitudinal (OL) layers.

- If the section is in the *upper* third the muscles are *striated*.
- If the section is the *middle* third the muscles are a *mixture* of striated and smooth.
- If the section in the *lower* third the muscles are *smooth*.

Adventitia: or Serosa (in abdominal part of esophagus).

Identifying features of a section in the human esophagus include:

- Non-keratinized stratified squamous epithelium.
- Submucosal mucous glands.
- Musculosa is formed of two layers; inner circular and outer longitudinal layers.
- In the upper third, musculosa is formed of striated muscles.

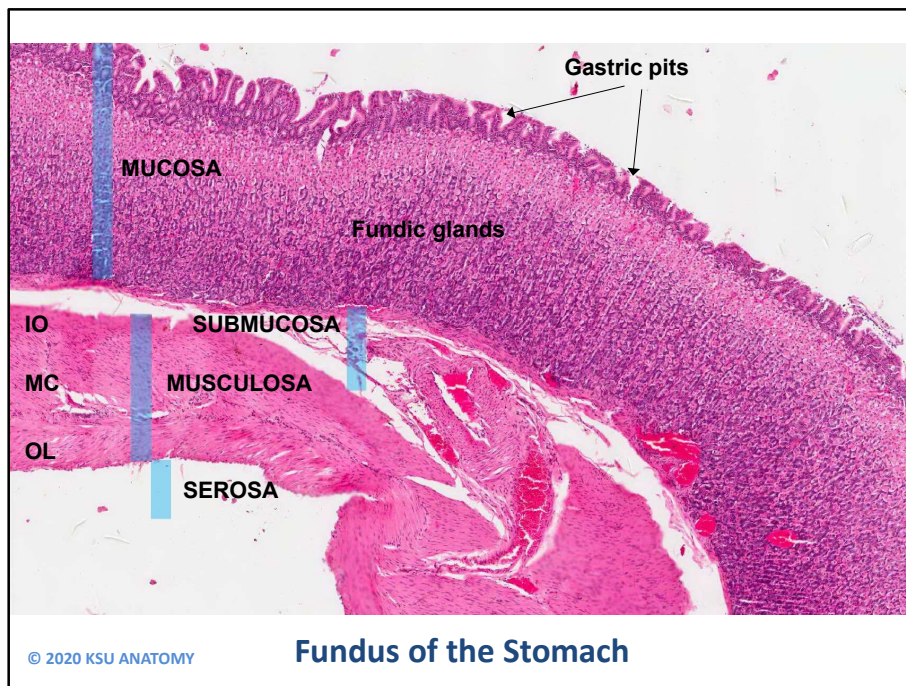


This is a section in the esophagus of cat. It differs from the esophagus of human (or dog) in the following:

- The muscularis mucosae in the cat is very well developed.
- There are no glands in the submucosa.

Identifying features of a section in the esophagus of cat include:

- Non-keratinized stratified squamous epithelium.
- Muscularis mucosae is very well developed.
- No submucosal mucous glands.
- Musculosa is formed of two layers; inner circular and outer longitudinal layers.
- In the upper third, musculosa is formed of striated muscles.



This is a section in the fundus of the stomach. We can see the classic four layers of the general plan of the alimentary canal; mucosa, submucosa, muscularis, and serosa which is missing here in this section.

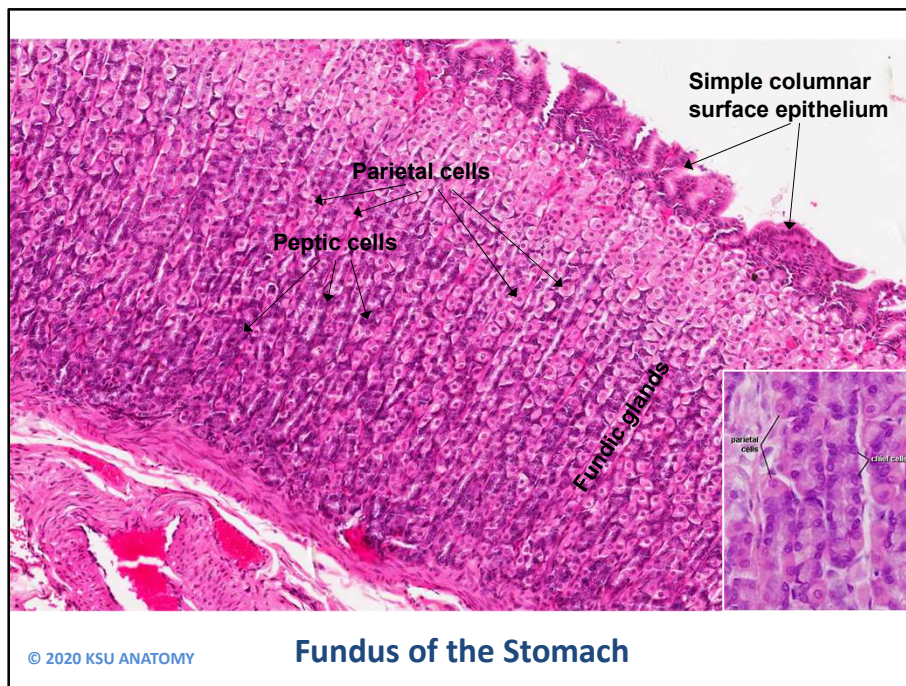
Mucosa is thick and packed with numerous gastric or fundic glands:

- Open on the surface by *short* ducts called gastric pits, occupying about 1/4 the thickness of the mucosa.
- Arranged *perpendicular* to the surface (no cross or oblique sections are seen).
- Extremely *narrow* (you can't see any lumen) and very close to each other.
- Their secretory parts occupy about 3/4 the thickness of the mucosa.

Submucosa contains NO glands.

Muscularis: three layers; inner oblique (IO), middle circular (MC), and outer longitudinal (OL) layers.

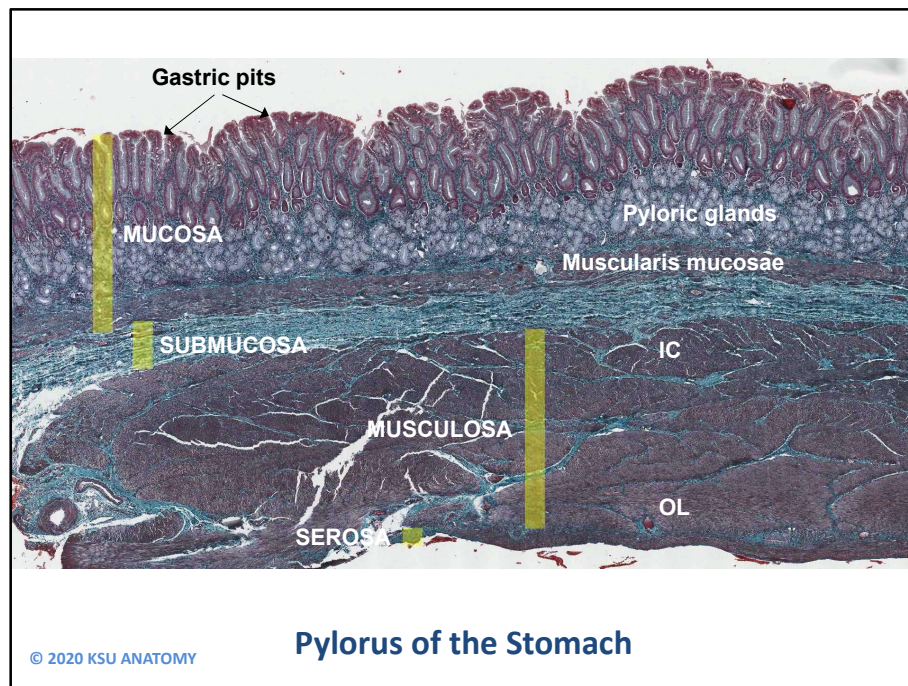
Serosa: Loose areolar C.T. covered by mesothelium.



In a higher magnification, we can see a simple columnar surface epithelium with NO goblet cells. We can distinguish two of the cell types present in fundic glands. The majority are the peptic (chief) cells with basophilic cytoplasm. Scattered among peptic cells are the parietal (oxyntic) cells which are larger and stain red.

Identifying features of a section in the fundus of the stomach include:

- Gastric pits.
- NO villi.
- Simple columnar surface epithelium.
- NO goblet cells.
- Fundic glands:
 - Their ducts (gastric pits) are short.
 - Perpendicular to the surface.
 - Extremely narrow (can't see any lumen) and very close to each other
 - Their secretory parts occupy about 3/4 the thickness of the mucosa.
- Peptic (chief) cells; basophilic.
- Parietal (oxyntic) cells; acidophilic.
- NO glands in submucosa.
- Muscularis formed of three layers; inner oblique, middle circular and outer longitudinal layers.



This is a section in the pylorus of the stomach.

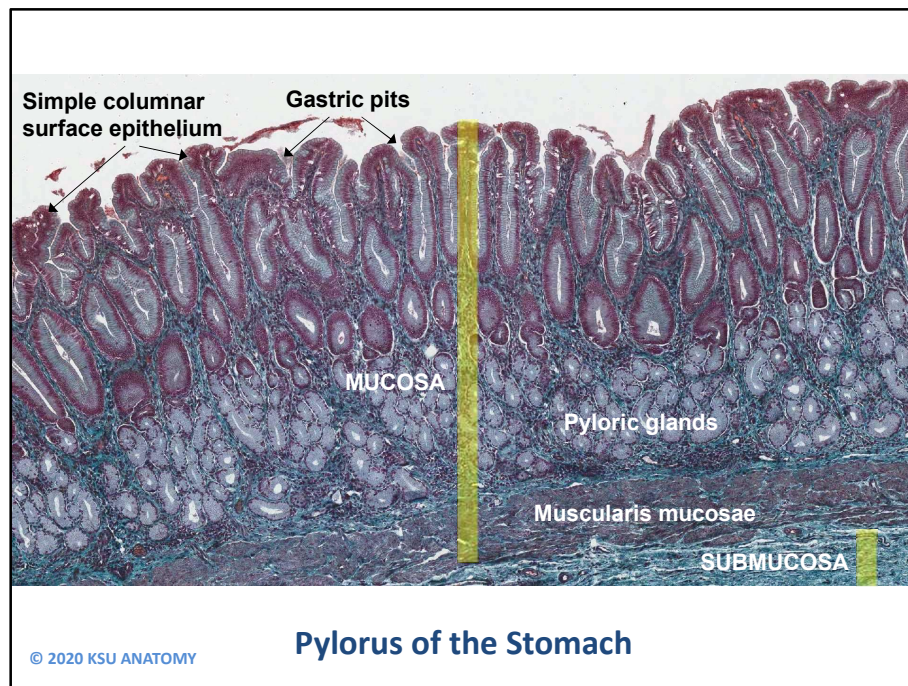
Mucosa is thick and full of pyloric glands:

- Their ducts (gastric pits) are *wide* and *deep (long)* and occupy about 1/2 the thickness of the mucosa.
- Secretory parts are *short* and *coiled*, so they are seen cut in cross and oblique sections.
- Their lumens are *wide* and the glands are more widely separated from each other than the glands in the fundus.
- Their secretory parts occupy about 1/2 the thickness of the mucosa.

Submucosa contains NO glands.

Musculosa: two layers; inner circular (IC), and outer longitudinal (OL) layers.

Serosa: Loose areolar C.T. covered by mesothelium.



In a higher magnification, we can see a simple columnar surface epithelium with NO goblet cells. In the secretory parts of the pyloric glands, we can distinguish only one type of cells (which secrete mucus). Their cytoplasm is very pale and clear (mucus dissolves during preparation of the section). The mucosa of the pylorus appears paler than the mucosa of the fundus.

Identifying features of a section in the pylorus of the stomach include:

- Gastric pits.
- NO villi.
- Simple columnar surface epithelium.
- NO goblet cells.
- Pyloric glands:
 - Their ducts (gastric pits) are long.
 - Short and coiled.
 - Their lumens are wide and the glands are more widely separated from each other than the glands in the fundus.
 - Their secretory parts occupy about $1/2$ the thickness of the mucosa.
- Mucus-secreting cells.
- NO glands in submucosa.
- Muscularis formed of two layers; inner circular and outer longitudinal layers.

Thank You



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