

Histology Team 431



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Alimentary Canal: Is subdivided into: esophagus, stomach, small intestine (duodenum, jejunum and ileum), and large intestine (cecum, colon, rectum, anal canal, and appendix).

General Architecture Of the alimentary canal

1- Mucosa:

a- Epithelium

b-Lamina propria (contains lymph follicles)

c-Muscularis mucosa some times called muscularis interna.

2- Submucosa: it contains submucosal plexus also called Meissner's plexus

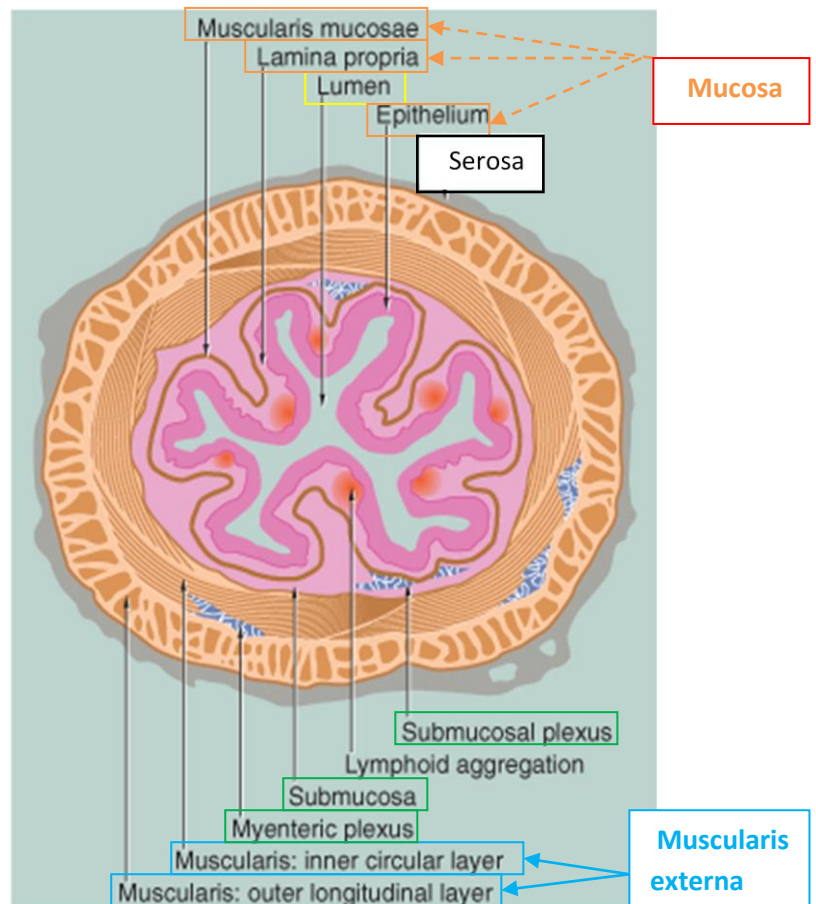
3- Muscularis externa.

a- inner circular.

b-outer longitudinal.

Auerbach's (myenteric) plexus in between the 2 layers

4- Adventitia (C.T) or serosa ; C.T covered by Peritoneum (a double layers of simple squamous epithelium or simply mesothelium)



ESOPHAGUS

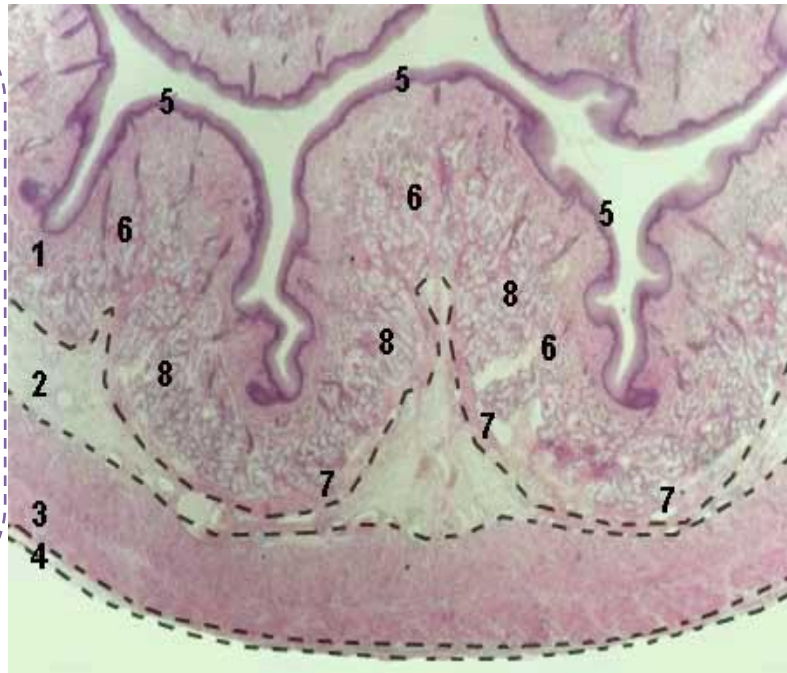
1 - mucosa:

- 5 - epithelium of the mucosa.
- 6 - lamina propria of the mucosa.
- 8 - glands in the lamina propria.
- 7 - muscularis mucosae.

2 - submucosa

3 - muscularis Externa

4 - adventitia

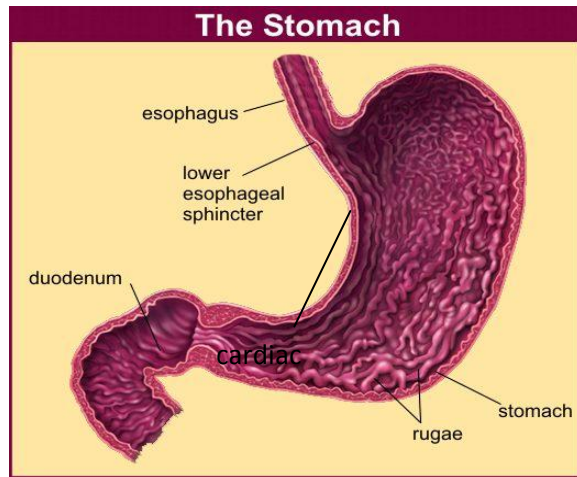


Mucosa	Submucosa	Muscularis Externa	Serosa or adventitia
<p>Epithelial Lining: Non-Keratinized Stratified Squamous Epithelium.</p> <p>Lamina propria: C.T.</p> <p>Muscularis mucosae: Few layers of smooth muscle fibers.</p>	<p>1-Connective tissue containing blood vessels, nerves, glands.</p> <p>2-Meissner's plexus of nerve fibers and nerve cells.</p>	<p>Usually 2 smooth muscle layers: Inner circular layer. Outer longitudinal layer. Auerbach's(myenteric) plexus in between the 2 layers.</p>	<p>Serosa is C.T. covered by mesothelium (simple squamous epithelium) in the abdominal part of the esophagus, or adventitia if there is no mesothelium.</p> <p>Q: the esophagus mainly covered by which layer? Adventitia.</p>



STOMACH

- ❖ It has 4 regions: **cardia**, **fundus**, **body** and **pylorus**.
- ❖ Mucosa has folds, known as **rugae** that disappear in the distended stomach.



Fundus of Stomach

- ❖ the body of the stomach has the same histological structures of the fundus

Mucosa

The surface of the stomach is lined by a simple columnar epithelium (mucus-secreting cells) whose cells are called **1- surface mucous cells**. These cells modify to form **fundic glands**.

2. Fundic glands:

- ❖ Composed of 5 cell types:
 1. **Parietal (oxyntic) cells:** secrete **HCl** and **gastric intrinsic factor** that helps absorption of vitamin B₁₂.
 2. **Peptic (chief) cells:** secrete **pepsinogen**.
 3. **Mucous neck cells:** secrete **mucus**.
 4. **Enteroendocrine (DNES) cells:** secrete **hormones** (e.g. somatostatin).
 5. **Stem cells:** **regenerative cells**.
- ❖ **Fundic glands have short pits called gastric pits—**one forth of mucosa, simple or branched tubular glands, they are rich in parietal & chief cells.

3. Lamina propria: invaded by numerous fundic glands.

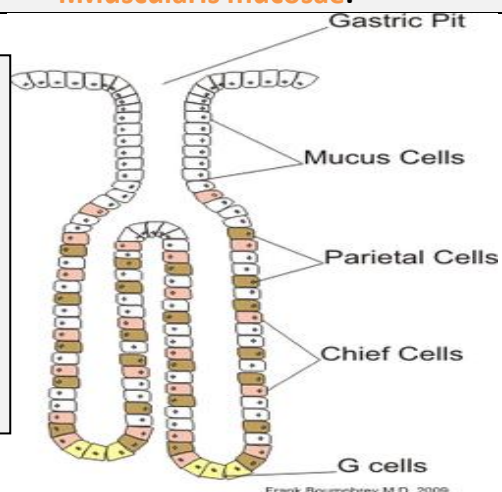
4. Muscularis mucosae.

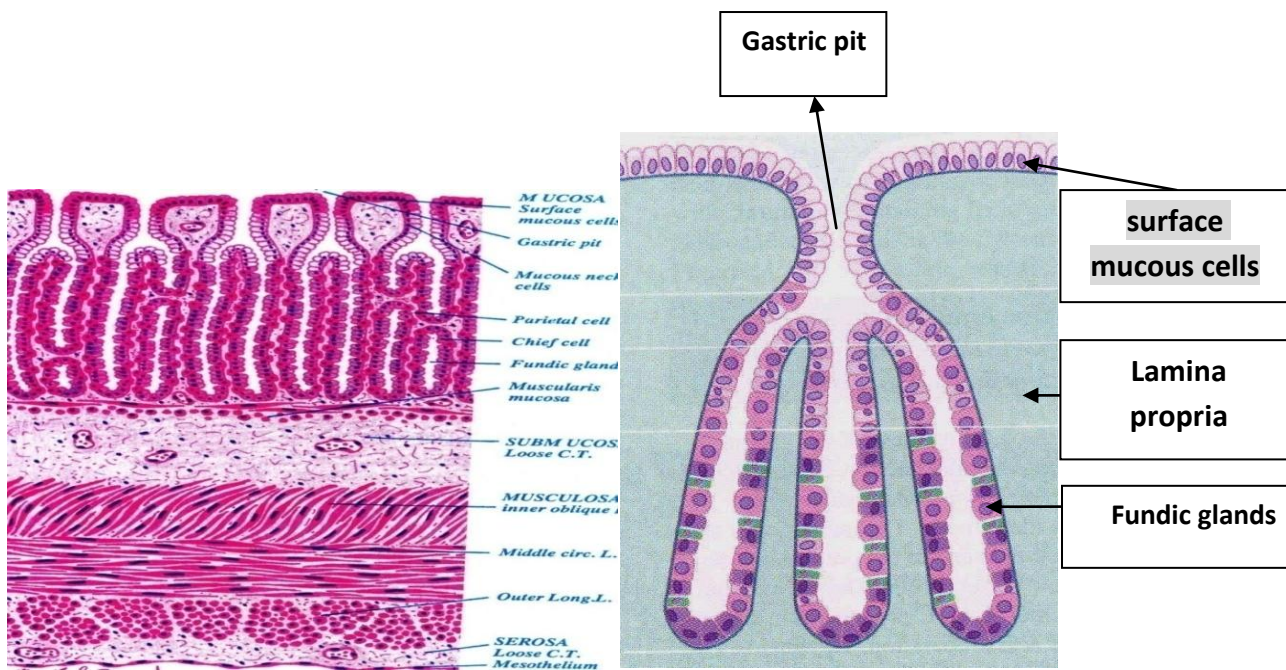
2- Submucosa: Connective tissue containing blood vessels & nerves. **NO glands.**

3- Muscularis Externa; Three smooth muscle layers:

1-Inner oblique. 2-Middle circular. 3-Outer longitudinal

4-Serosa: CT covered by mesothelium.





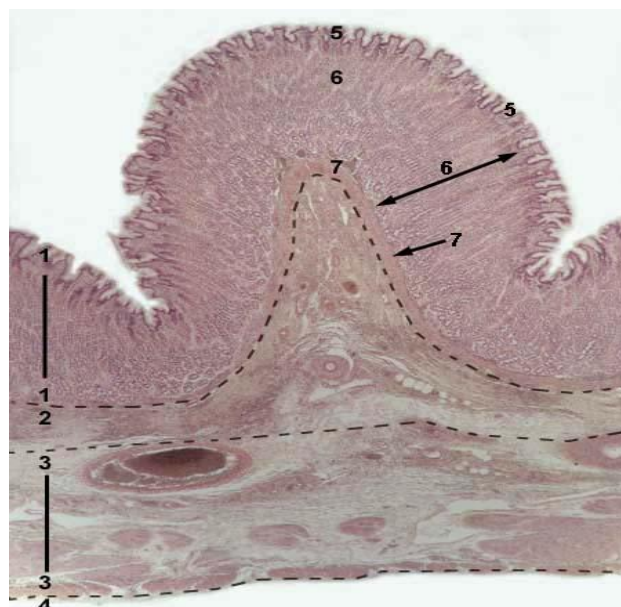
1 - mucosa:

- 5 - epithelium of the mucosa
- 6 - lamina propria of the mucosa (contains glands)
- 7 - muscularis mucosae

2 - submucosa.

3 - muscularis externa.

4 - serosa

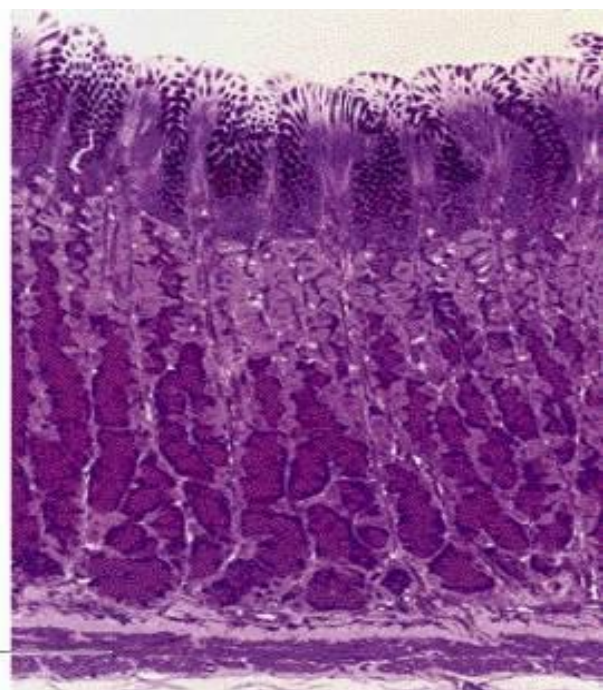


Section of the gastric glands in fundus of stomach

Photomicrograph Note the superficial mucus-secreting epithelium.

Parietal cells (light-stained) predominate in the mid and upper regions of the glands.

Chief (zymogenic) cells (dark-stained) predominate in the lower region of the gland.



PYLORUS OF STOMACH

Mucosa	Submucosa	Muscularis Externa	Serosa
modify to form pyloric glands. The surface epithelium is simple columnar mucus-secreting cells.	Connective tissue containing blood vessels & nerves. NO glands.	Two smooth muscle layers: Inner circular(thicker). Outer longitudinal.	C.T. covered by mesothelium

Their pits are deep --- about half the length of mucosa.

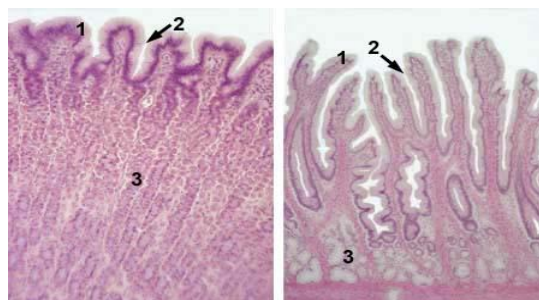
They are branched and convoluted --- many cross sections.

The predominant cells are mucous neck cells that secrete mucus.

Additional Note :there is 6 types of the epithelium located in the wall of the stomach ;the surface mucus secreting epithelium & the 5 types of the fundic glands .

FUNDAL PART (left),PYLORIC PART (right) OF THE STOMACH

- 1 - epithelium of the mucosa
- 2 - gastric pits in the mucosa
- 3 - glands in the lamina propria



QUESTIONS..

1-What is the most dominant cell in the pyloric glands?

- A-Chief cells.
- B-Mucuos neck cells.
- C-DNES cells.
- D-Parietal cells.

2-Which one is the chief cell?

- A-Parietal cells.
- B-Mucuos neck cells
- C-Peptic cells.
- D-Stem cells.

3-Where can we find submucosal glands ?

- A-Esophagus.
- B-Fundus of the stomach
- C-Pylorus of the stomach

B , C , A