GI
HISTOLOGY

 # lab pt2

WRITER:
Noor Mansour

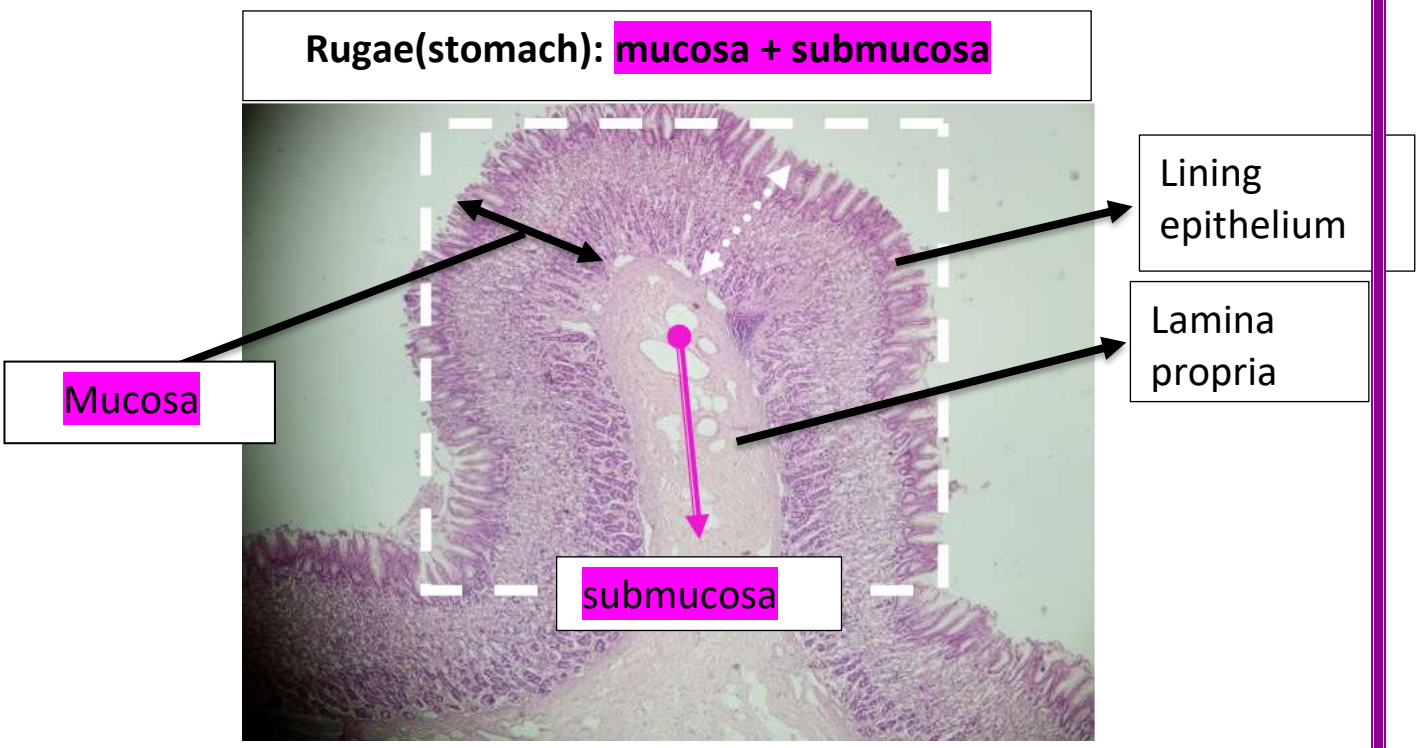
CORRECTOR:
Your Name

DOCTOR:
Al-Muhtaseb

HISTOLOGY LAB PART 2

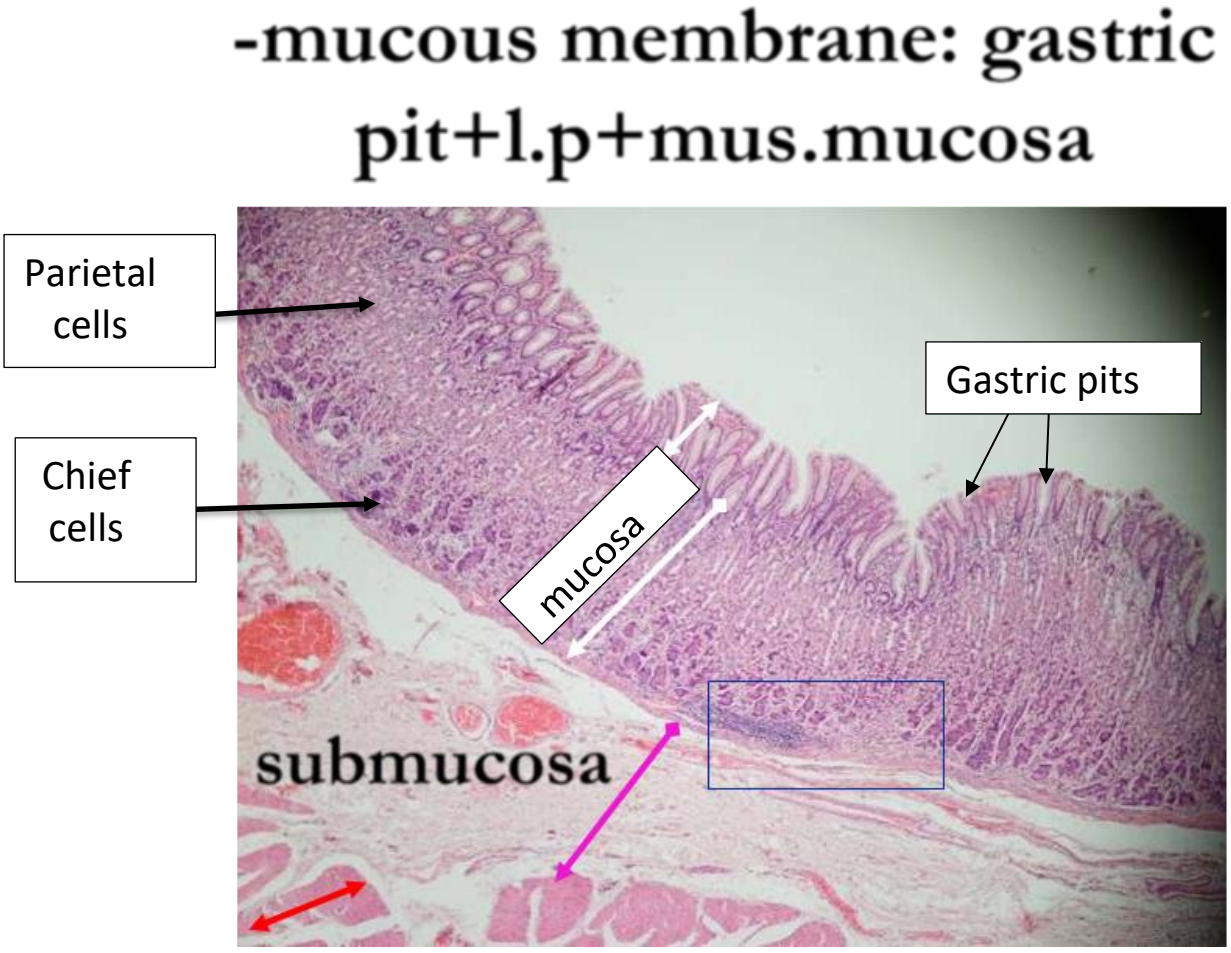
1) Stomach histology

As you guys know the stomach is divided into 3 parts: The fundus is the top, rounded area that lies to the left of the cardia. The body is the largest and main part of the stomach.



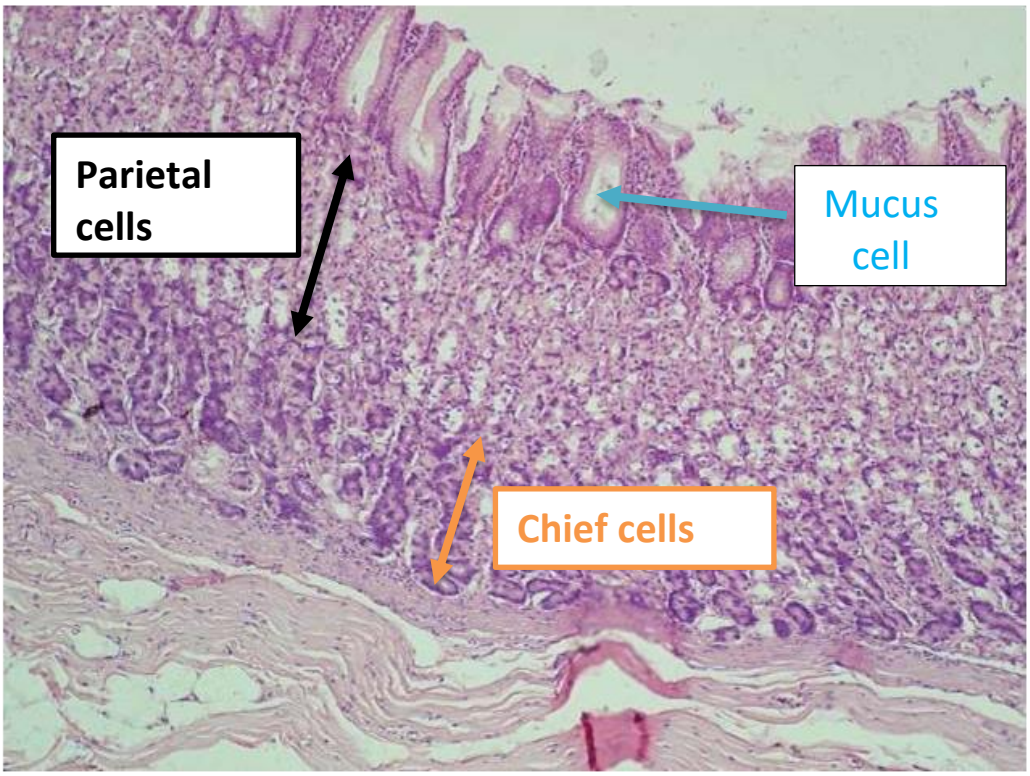
- Rugae = submucosa invagination through the mucosa.
- Rugae is present in different directions.
- Rugae lines the lesser curvature, it's important for the fluids.
- Submucosa = dense connective tissue.
- Lamina propria = loose connective tissue.
- In the GIT glands are usually found in the lamina propria, except 2 organs: esophagus & duodenum (they have glands in the submucosa)
- Lamina propria forms the gastric gland, a simple or branched tubular gland.
- The lining epithelium is **simple columnar epithelium <u>without</u> goblet cells.** Because the lining epithelium's main function is secretion of mucus, so it doesn't need goblet cells.
- Goblet cells are present in the lining of small intestines to neutralize the acidity that comes from the stomach.

This picture is for clarification:

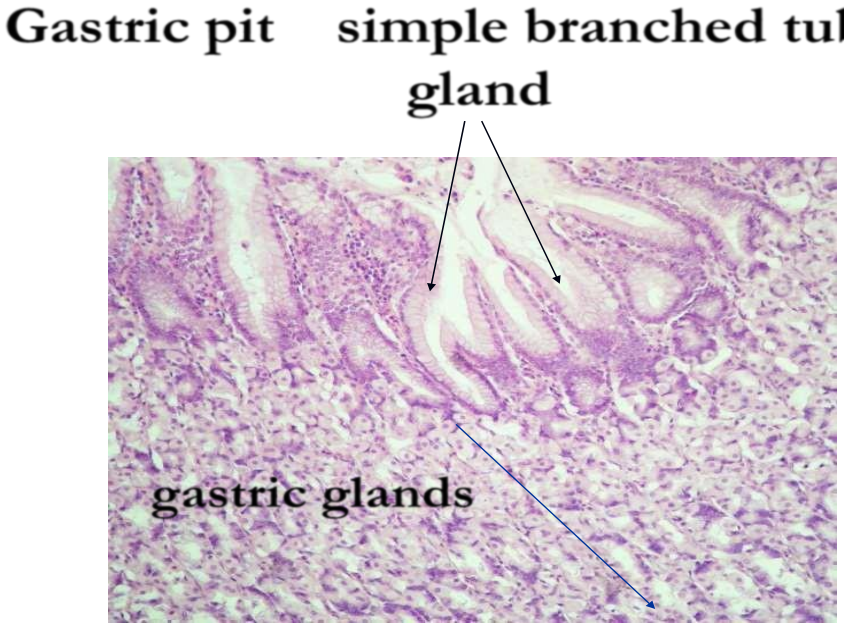


- In the submucosa we can find some capillaries, lymphatics and nerves.
- Gastric pits are microscopic invaginations (ducts for glands)
- In the body & the fundus -> the thickness of glands is low, and the pits are short and wide (huge digestion function in the body)
- In the pylorus -> the glands are short, and the pits are long and narrow (little digestive function)
- Chief cells are present in the base of gastric glands (basophilic cells that secrete pepsinogen)
- The base of gastric glands is dark because of chief cells.
- Parietal cells are present in the neck (isthmus) of the gastric gland
- Parietal cells are acidophilic cells that secrete HCL that's why it looks fainted in color.

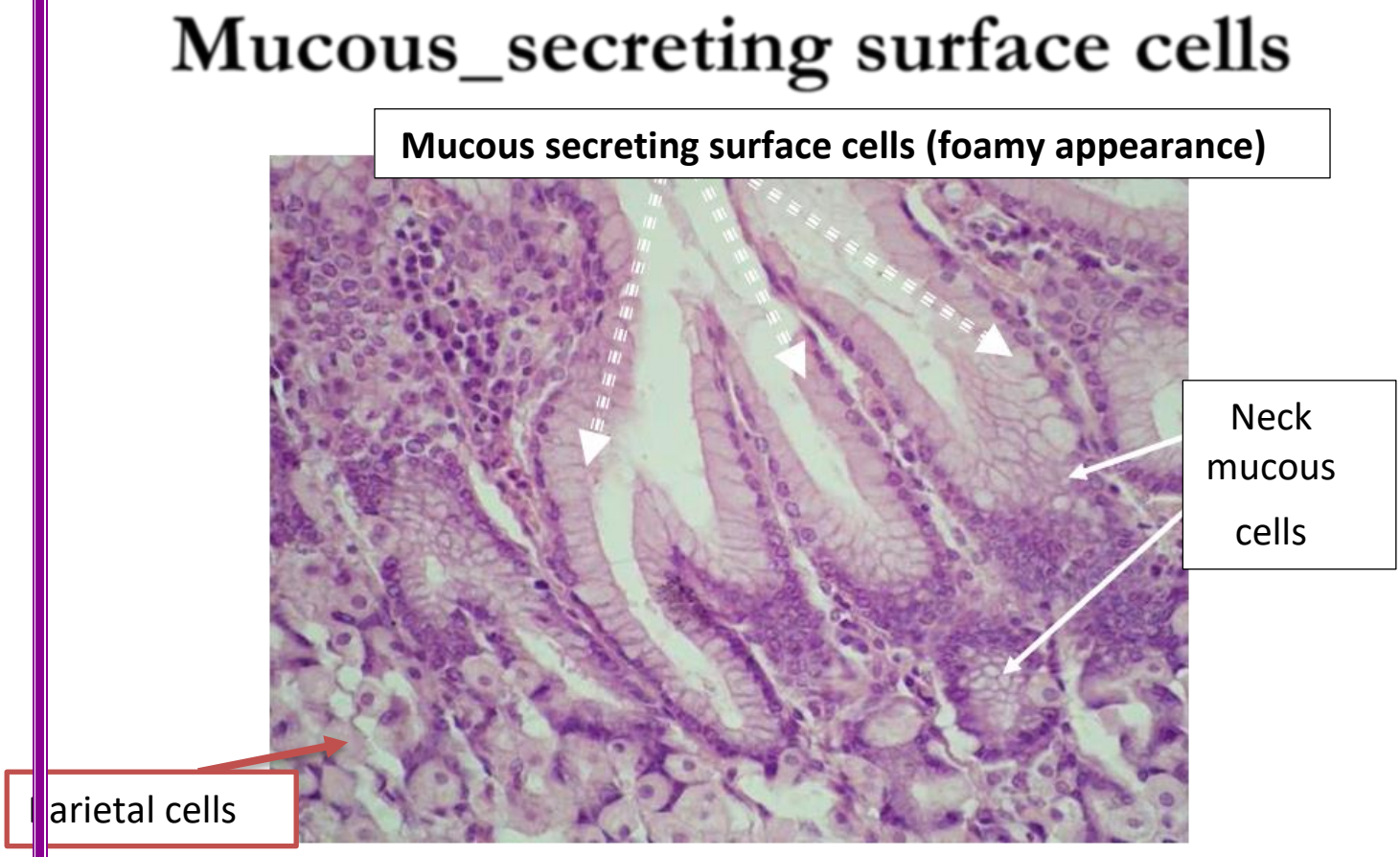
Fundus or body of stomach



- A gland is a group of cells, the gastric gland has mucus cells, parietal cells, chief cells, endocrine cells, and stem cells.
- What are the cells that can be seen under the light microscope? 1-mucus cells 2-parietal cells 3-chief cells
- Gastric glands consist of 4 parts: isthmus, neck, body & base.

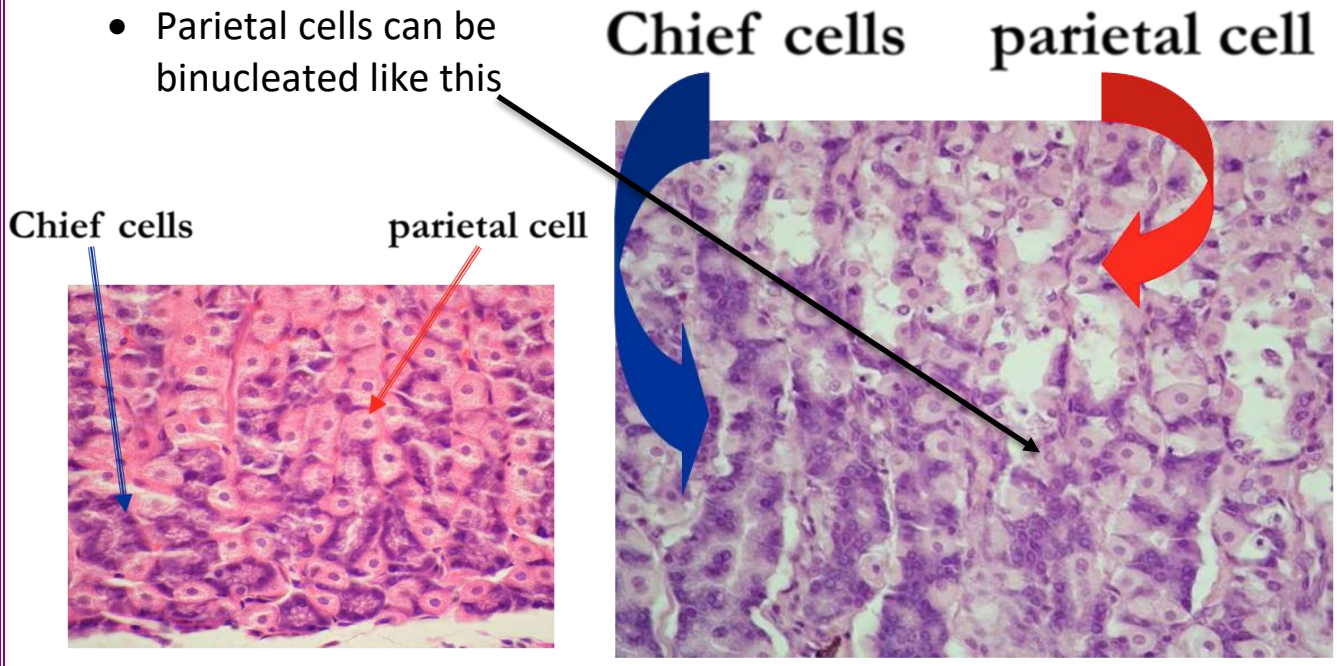


- Because parietal cells are acidophilic, it has a central rounded nucleus & the cytoplasm is showing (fainting color)



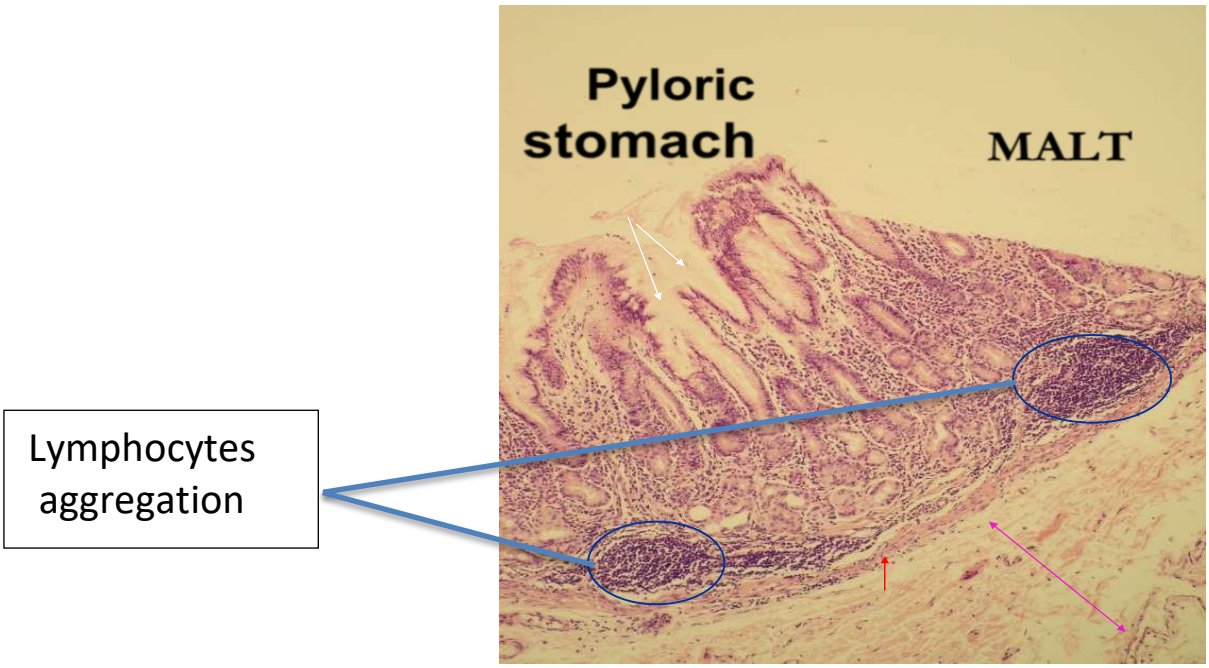
- Mucous cells are mostly in the isthmus & neck of the gastric gland.

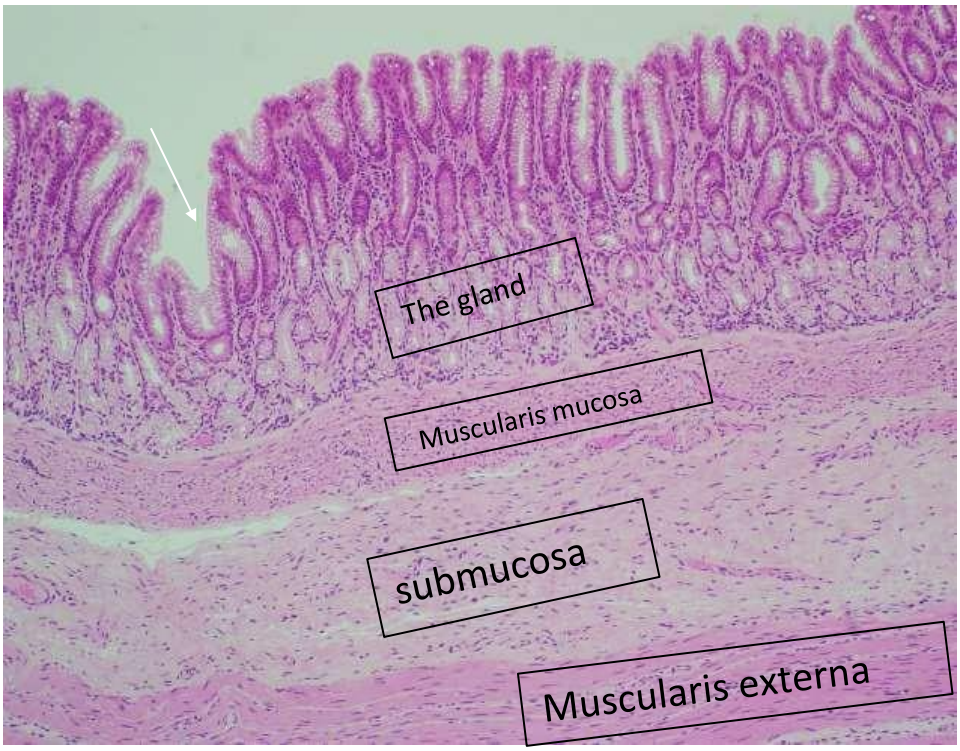
- Parietal cells can be binucleated like this



When we compare the body/fundus that we talked about to the pylorus:

- The thickness of the gland is smaller in the pylorus.
- The pits are narrow and long in the pylorus.
- Types of cells: mostly mucus, NO CHIEF CELLS OR PARIETAL CELLS.
- Mucus is important is the pylorus to neutralize the acidity that comes from the body of stomach.
- Pylorus has short thickness glands with long and narrow pits.
- Aggregation of lymphocytes in the pylorus, because e want to filter the material from microbes before it enters the duodenum.

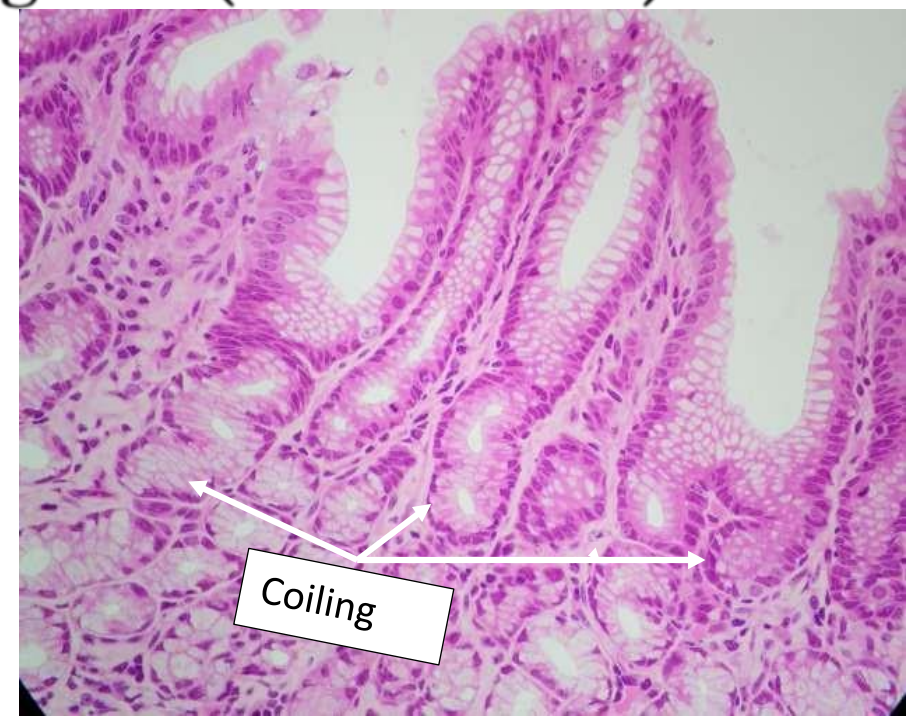


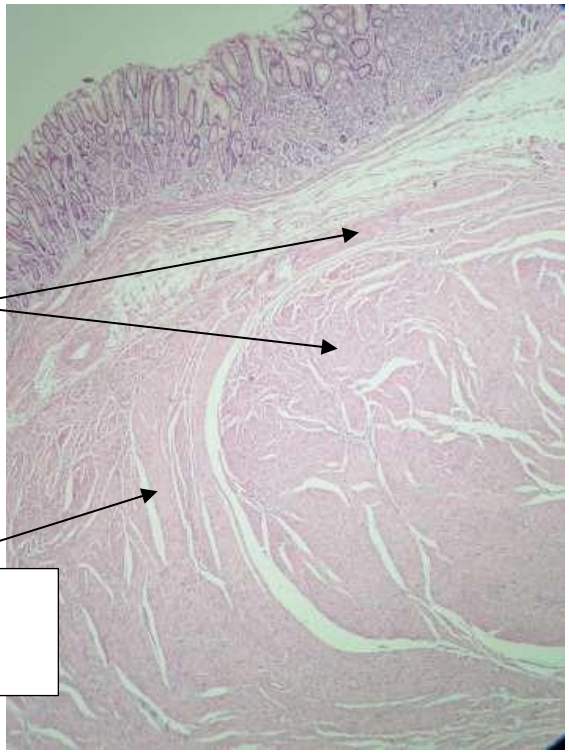


- The three layers of smooth muscle in the stomach consist of the outer longitudinal, the middle circular, and the inner oblique muscles.
- In pylorus, the most inner layer disappears because the circular layer thickens for the formation of the pyloric sphincter.

Pyloric glands

simple branched tubular coiled glands(mucous cells)

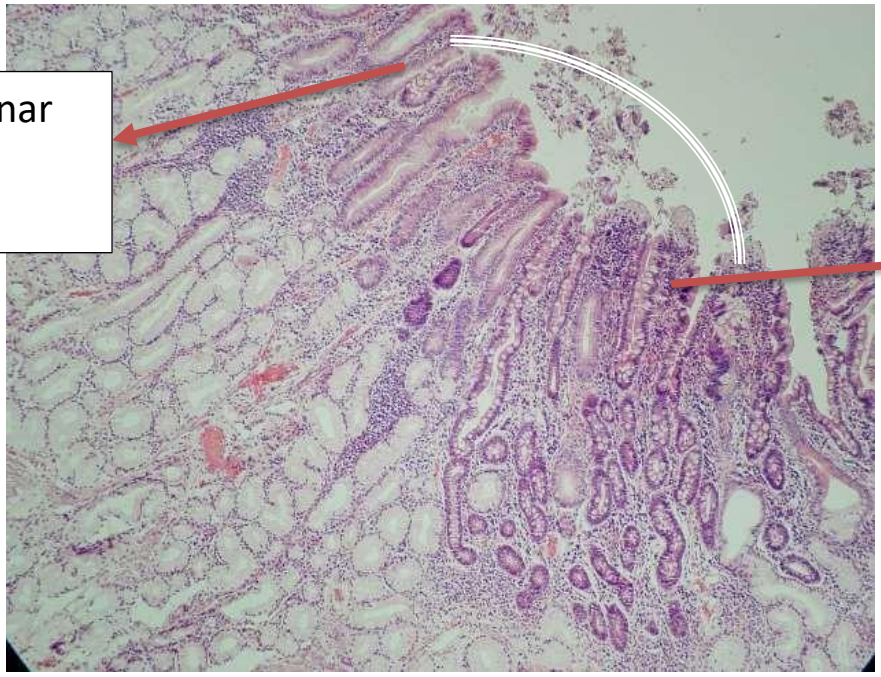




The pyloric-duodenal junction is where the pylorus is ending the duodenum (first part of small intestines) starts to show.

The duodenum shows finger-like projections.

Pyloric- duodenal junction

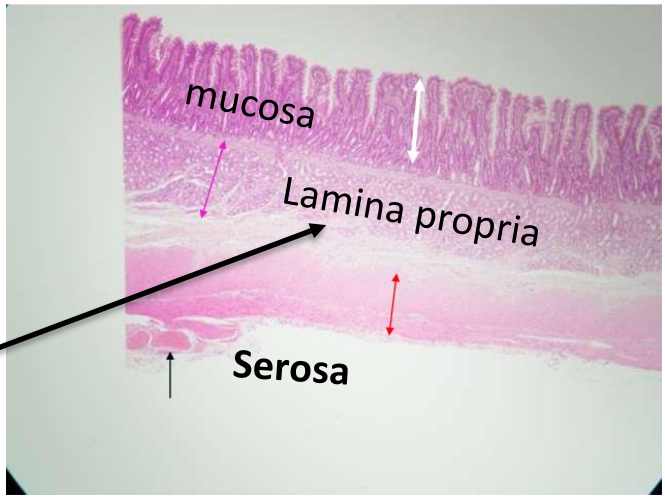


2) Small intestine histology

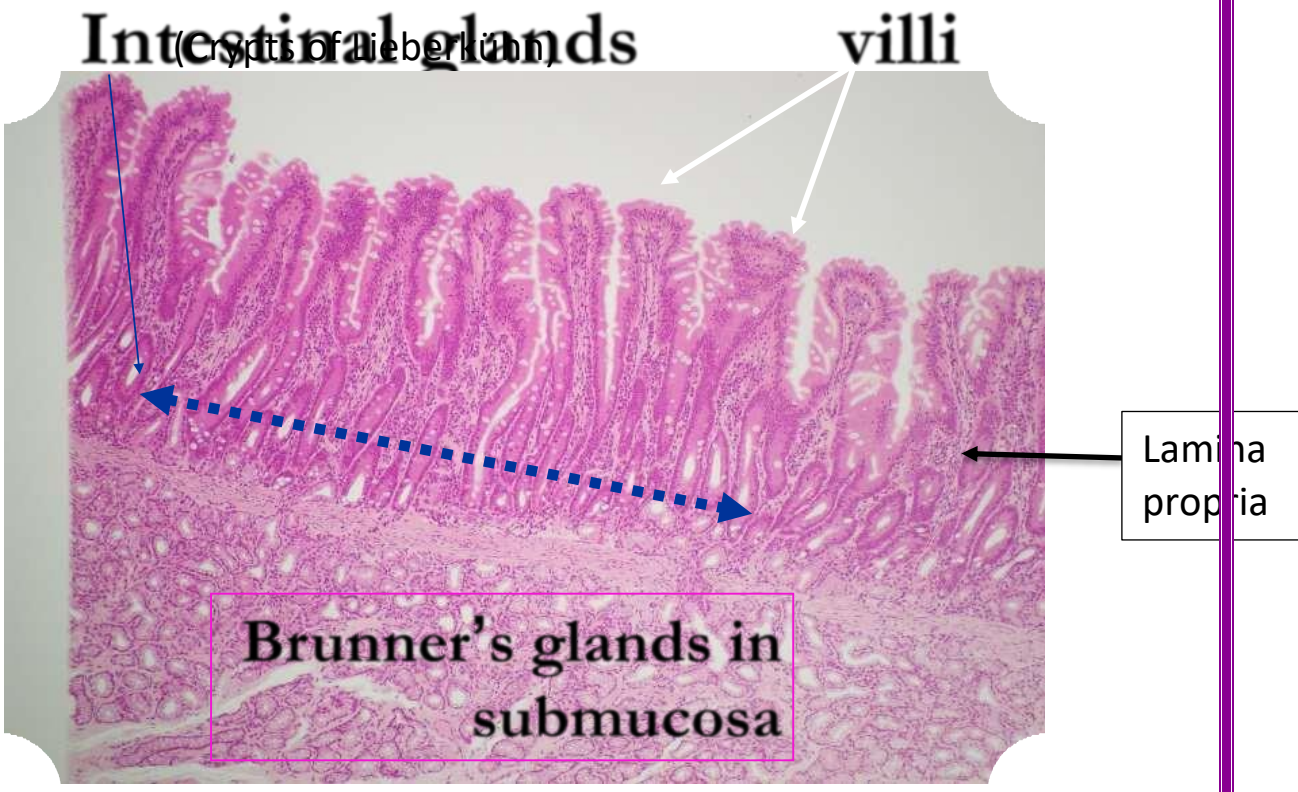
look at the layers of the duodenum, firstly mucosa, it makes finger like projections (in the duodenum we call it leaf-like projection), then the intestinal gland (crypts o lieberkuhn) in the lamina propria, muscularis externa and serosa.

- Simple columnar epithelium on the surface and in the gland.
- Crypts of Lieberkühn contain stem glands, endocrine glands, goblet cells absorption cells.
- Paneth cells are present in the base of the gland

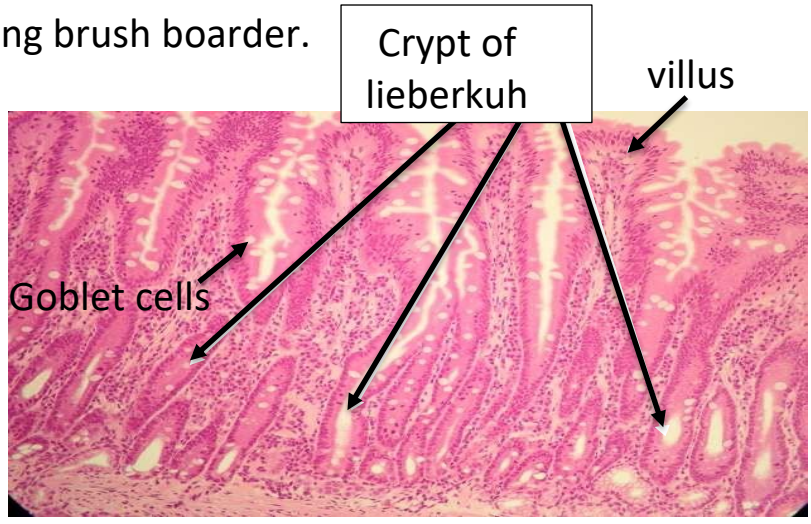
Duodenum



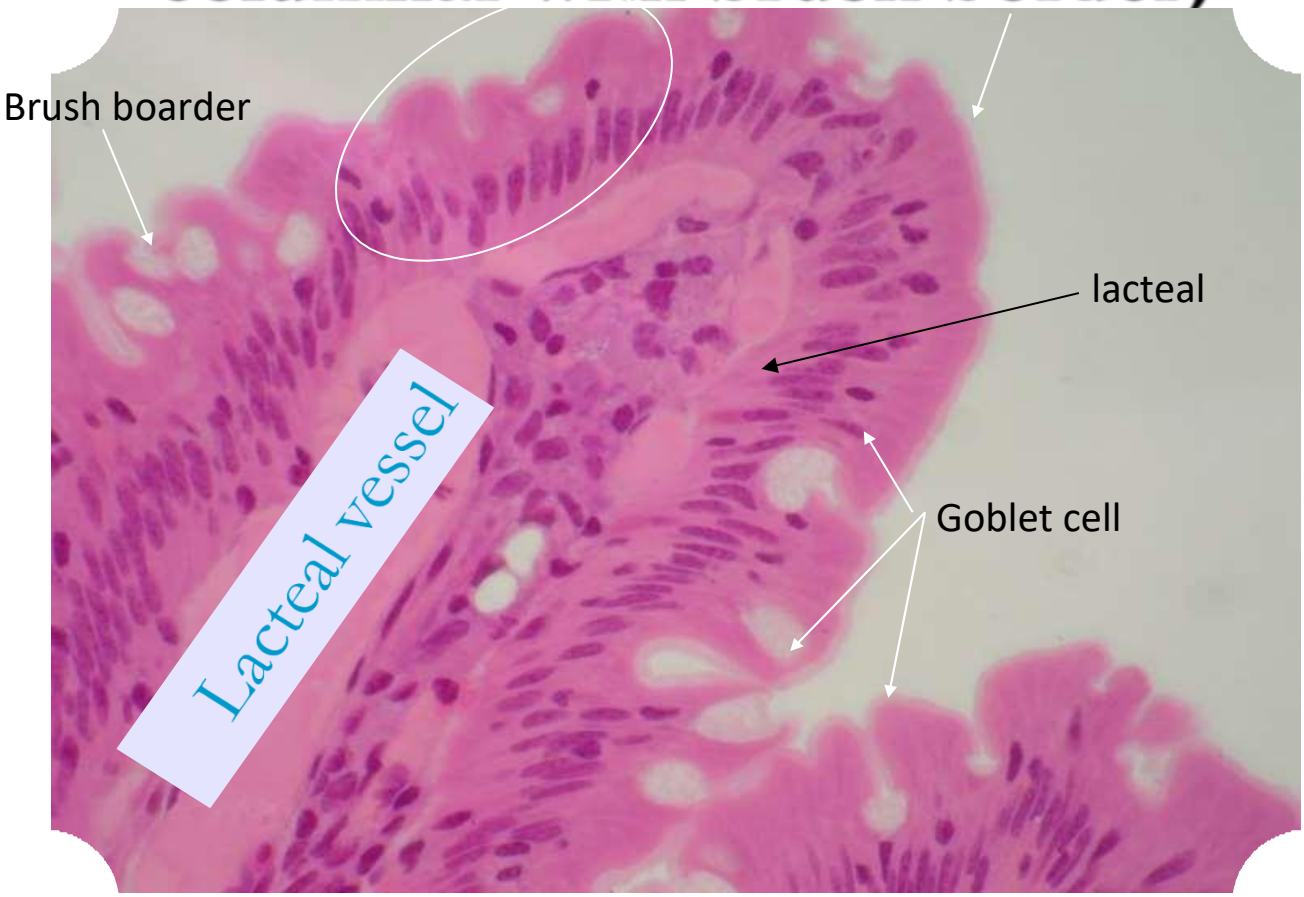
- Paneth cells are antimicrobial cells that secrete lysosomes & contain antibodies.
- The duodenum is a retroperitoneal organ so the serosa is only on the anterior surface, the other parts are connective tissue.

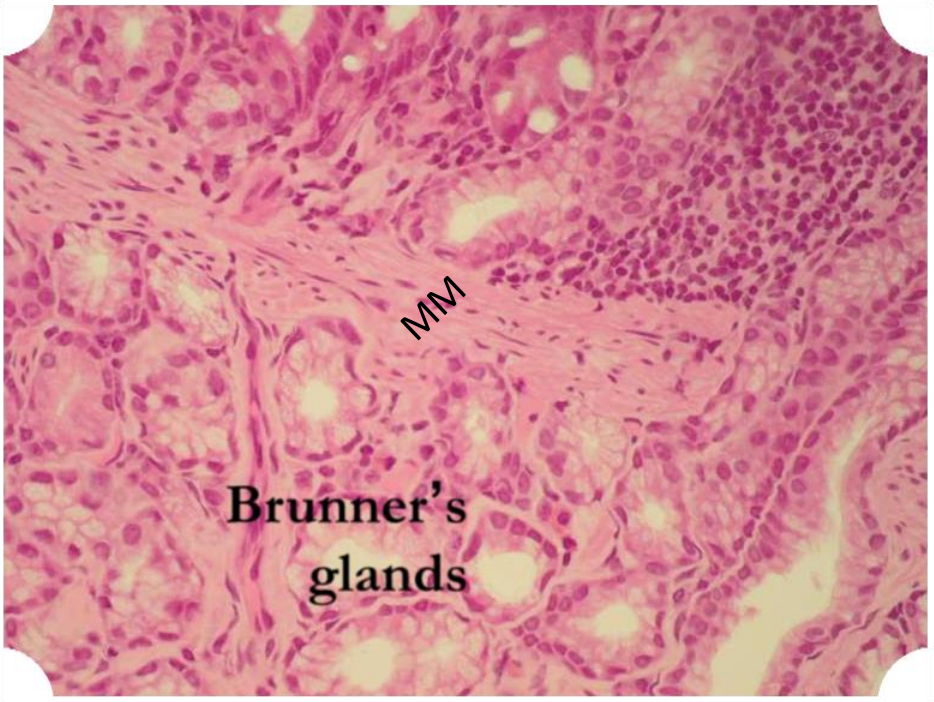


- In the picture above the epithelium is simple columnar epithelium with goblet cells. The villi have goblet cells on them.
- Lamina propria (loose connective tissue) projects to the surface through the villi because it has blood vessels capillaries and lymphatic capillaries called *lacteals* (for the absorption of fat).
- The duodenum and the esophagus are the only 2 organs that have glands in their submucosa. In duodenum, we have mucous glands called Brunner's glands.
- Microvilli is present, forming brush boarder.



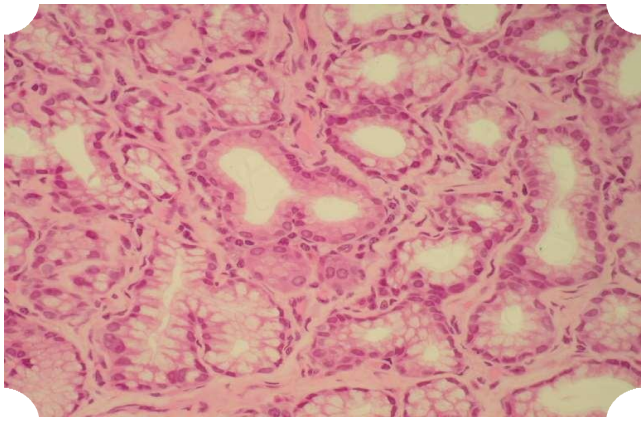
Surface absorbtive cells(simple columnar with brush border)



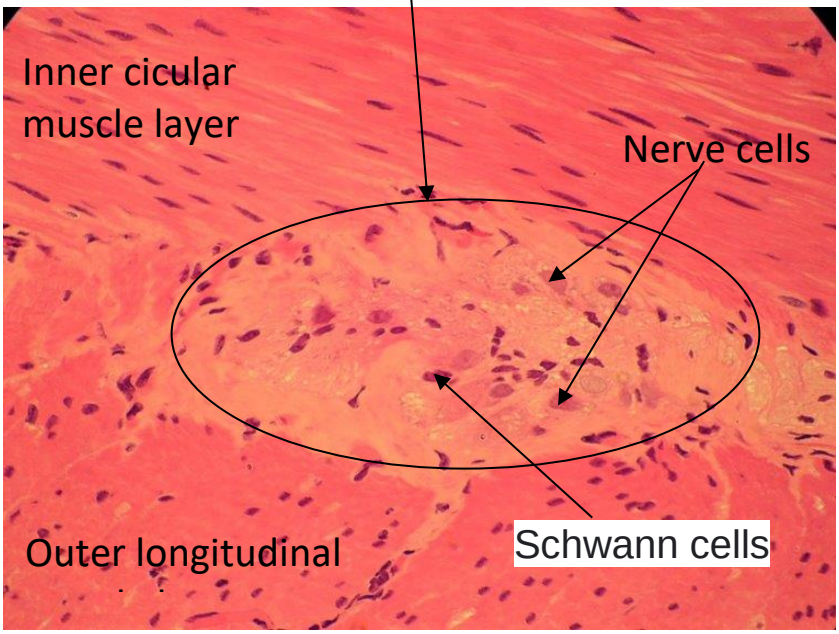


- Brunner's glands are present in the submucosa, they are simple branched tubular glands.
- Brunner's glands function: mucous secretion to neutralize the acidity of the duodenum.

Simple branch tubular gl.=mucous



Auerbach's myenteric plexus



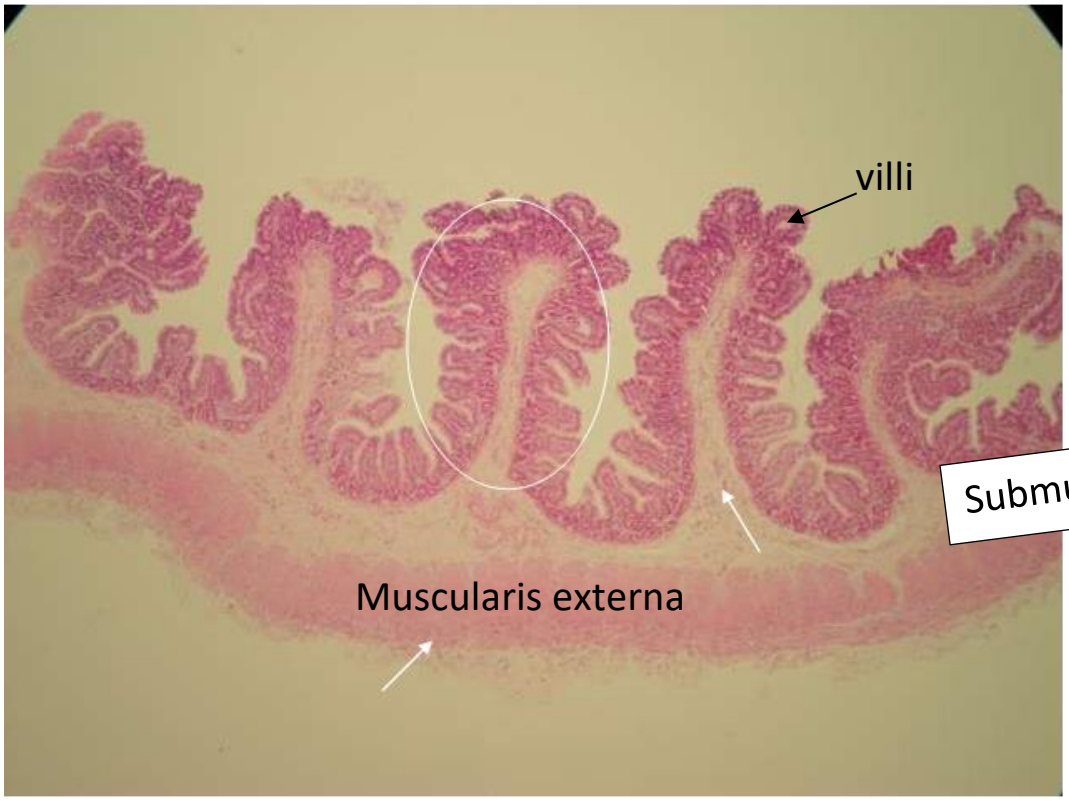
-Myenteric plexus lies between 2 muscle layers: inner circular and outer longitudinal

-Contains nerve cells that have pale cytoplasm

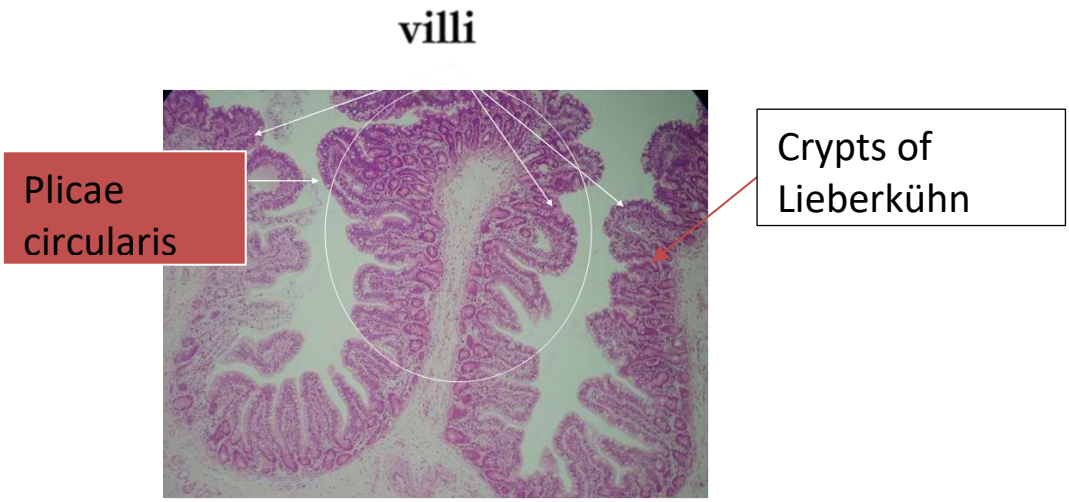
-The dark cells are Schwann cells around the axons of the nerves.

-Parasympathetic

Plicae circularis in jejunum



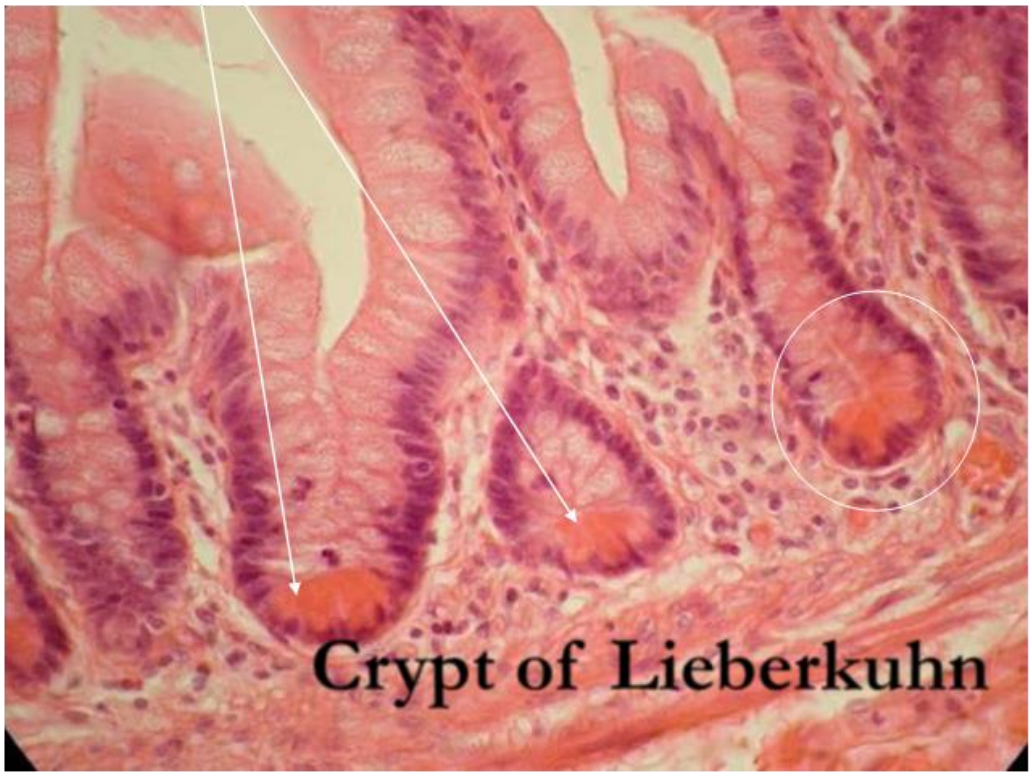
- What's special about the jejunum is the plicae circularis.
- Plicae circularis is an invagination of submucosa through the mucosa.
- Jejunum is important for absorption, so we need wide area, that's why we have plicae circularis, villi and microvilli.
- The microvilli are on top of the villi.
- Plicae circularis is basically like the Rujae in the stomach.



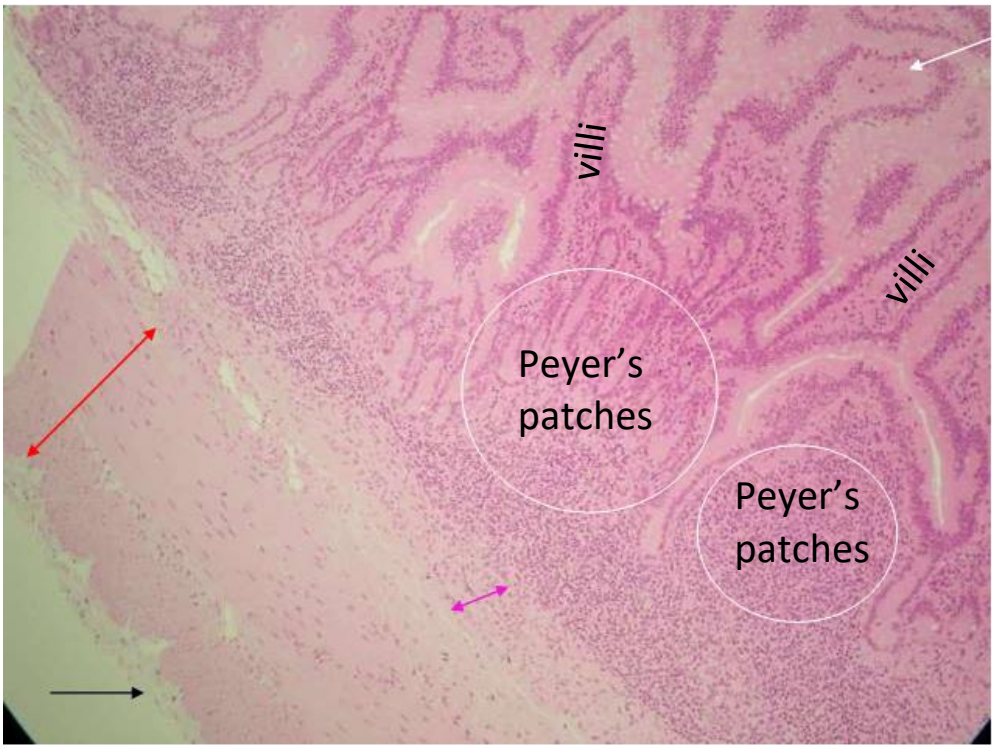
Crypt= intestinal gland

- Paneth cells are prominent in the jejunum

Paneth cell of intestinal gland



Ileum



- Ileum has so many Peyer's patches (lymphocytes) in the lamina propria and submucosa.
- We recognize the ileum histology by Peyer's patches + microvilli presence.