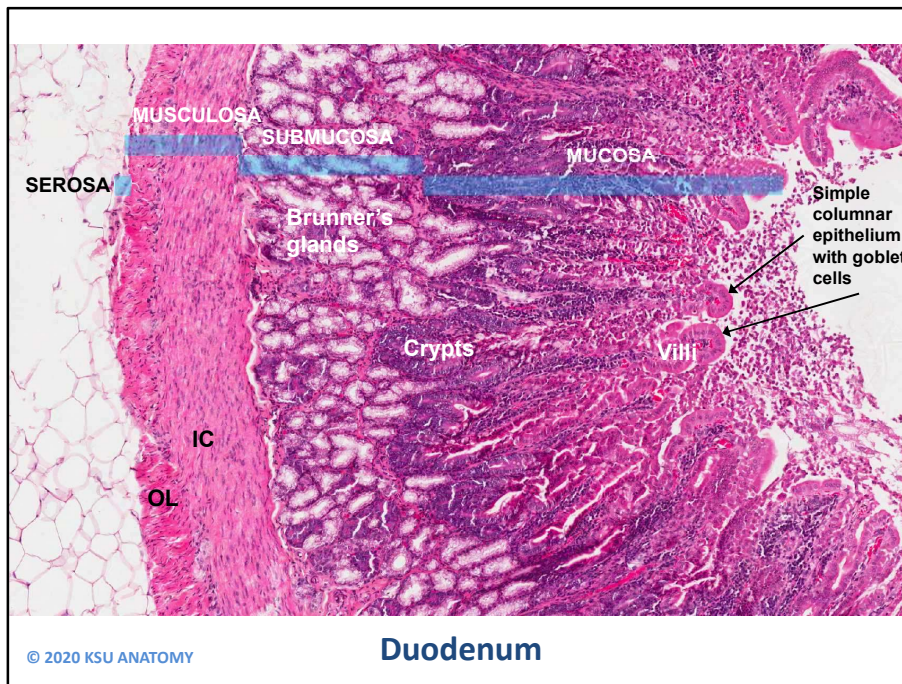




This is the Histology Practical Lab of Small and Large Intestines.



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

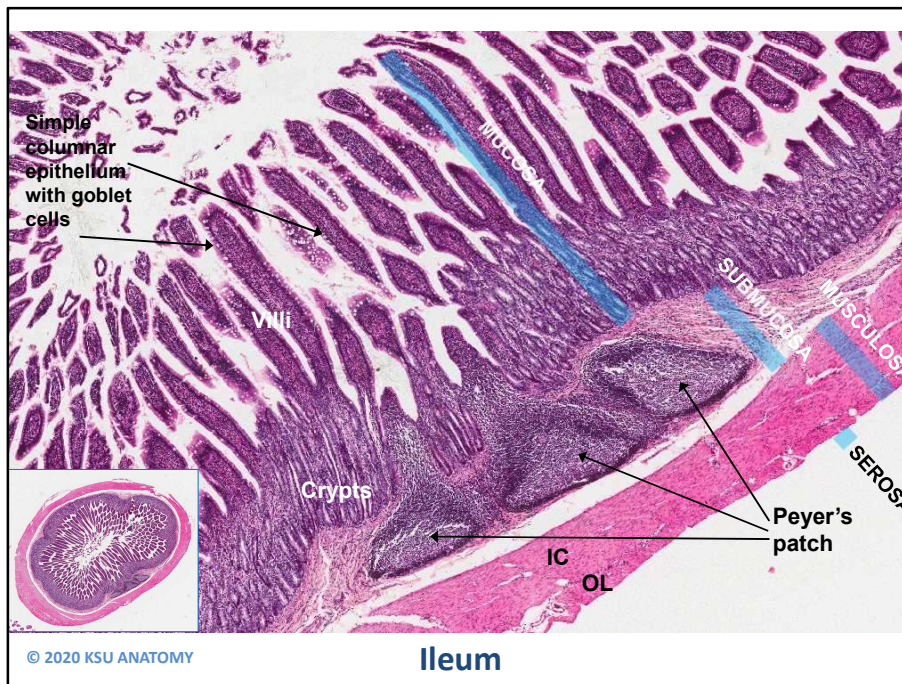
Mucosa shows projections above the surface called villi and invaginations below the surface called crypts. The epithelium is simple columnar epithelium with goblet cells.

Submucosa contains Brunner's mucous glands (this is characteristic for the duodenum).

Muscularis: inner circular and outer longitudinal layers.

**Identifying features** of a section in the duodenum include:

- Villi.
- Crypts.
- Simple columnar epithelium with goblet cells.
- Brunner's glands in submucosa.



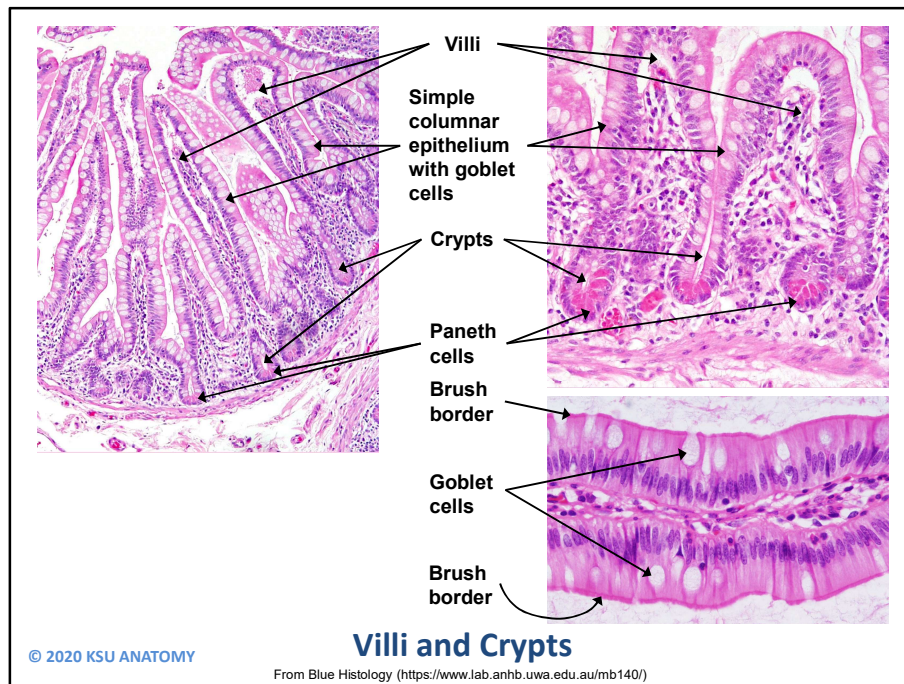
This is a section in the ileum. We can see the classic four layers of the general plan of the alimentary canal; mucosa, submucosa, muscularis, and serosa which is missing here in this section.

It is similar to a section in the duodenum with the following differences:

- The presence of Peyer's patch which is an aggregation of lymphoid nodules and diffuse lymphoid tissue in the submucosa and extending into the lamina propria of the mucosa.
- NO Brunner's glands in the submucosa.
- The epithelium contains more numerous goblet cells.

**Identifying features** of a section in the ileum include:

- Villi.
- Crypts.
- Simple columnar epithelium with numerous goblet cells.
- Peyer's patch.
- NO Brunner's glands in submucosa.



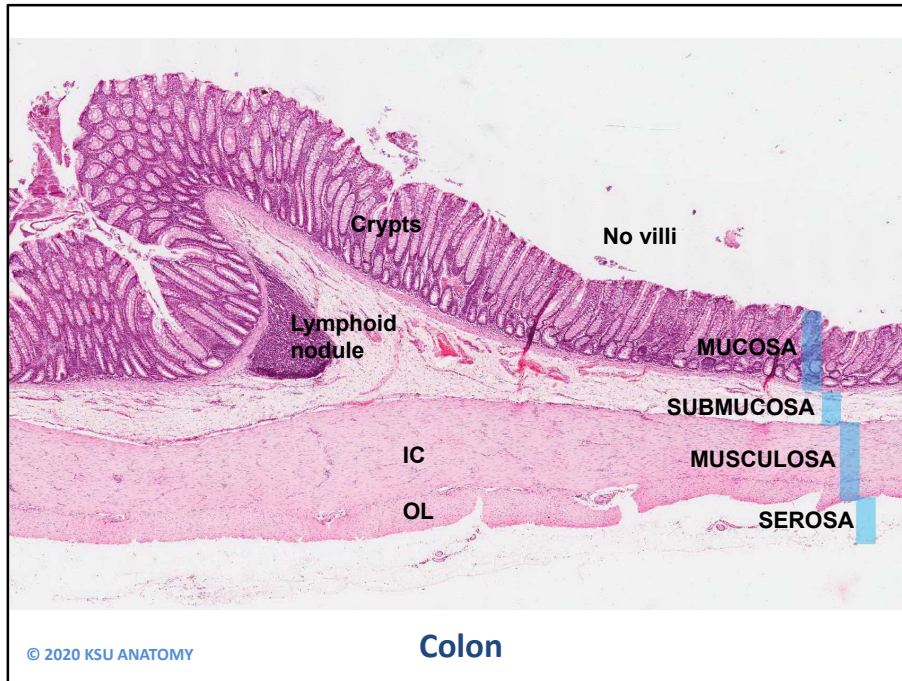
The most characteristic thing about the small intestine is that it contains villi which are finger-like projections from the mucosa into the lumen. Each villus is formed of a core of C.T. from the lamina propria covered by epithelium.

The crypts are simple tubular glands. Each crypt has a lumen. The openings of the crypts are found between the villi.

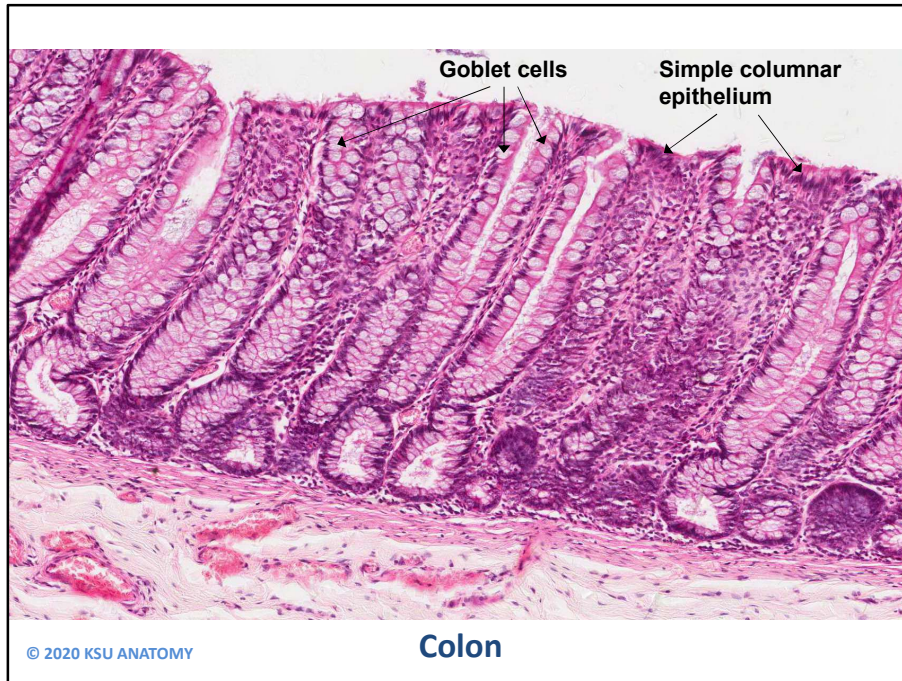
The surface epithelium covering the villi is continued down to line the lumens of the crypts.

We can see the following main types of cells in the covering and lining epithelium:

1. *Simple columnar absorptive cells* are tall columnar cells with a striated (or brush) border (microvilli). They do not secrete mucus.
2. *Goblet cells* are mucus-secreting cells scattered among the tall columnar cells. They have an expanded apex full of mucus which dissolves during preparation leaving an empty space.
3. *Paneth cells* are found only in the bottoms of the crypts. They are tall columnar cells with reddish cytoplasm (zymogen granules).



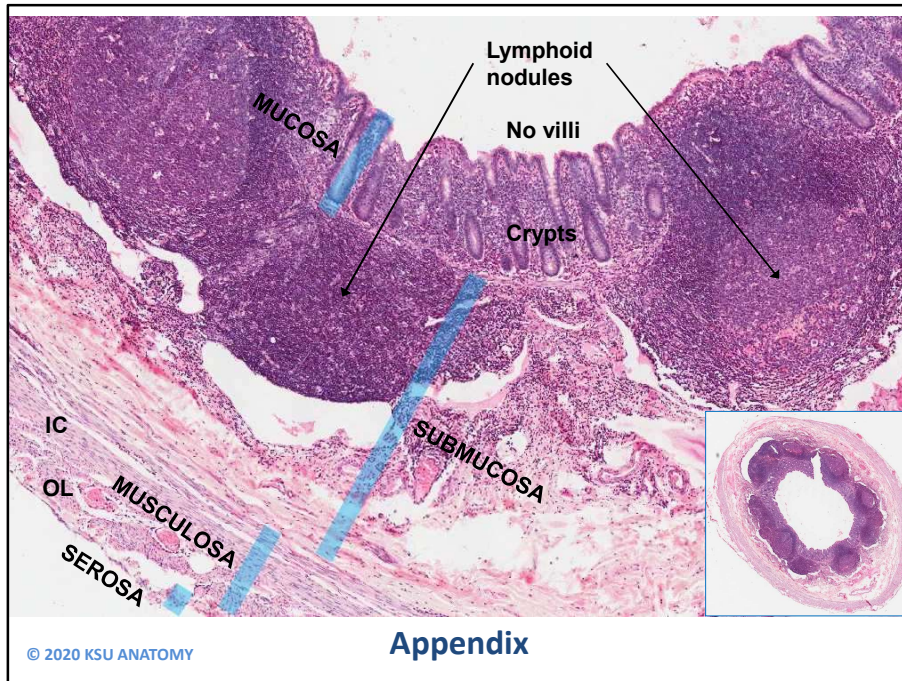
This is a section in the colon. We can see the classic four layers of the general plan of the alimentary canal; mucosa, submucosa, muscularis, and serosa. Mucosa is thick and contains only crypts, NO villi. Submucosa contains NO glands. Lymphoid nodules are frequently seen in the lamina propria and in the submucosa. Musculosa: inner circular and outer longitudinal layers. The outer longitudinal layer is not continuous.



The epithelium is simple columnar epithelium with numerous goblet cells giving the epithelium a clear appearance due to the dissolved mucus of the goblet cells.

**Identifying features** of a section in the colon include:

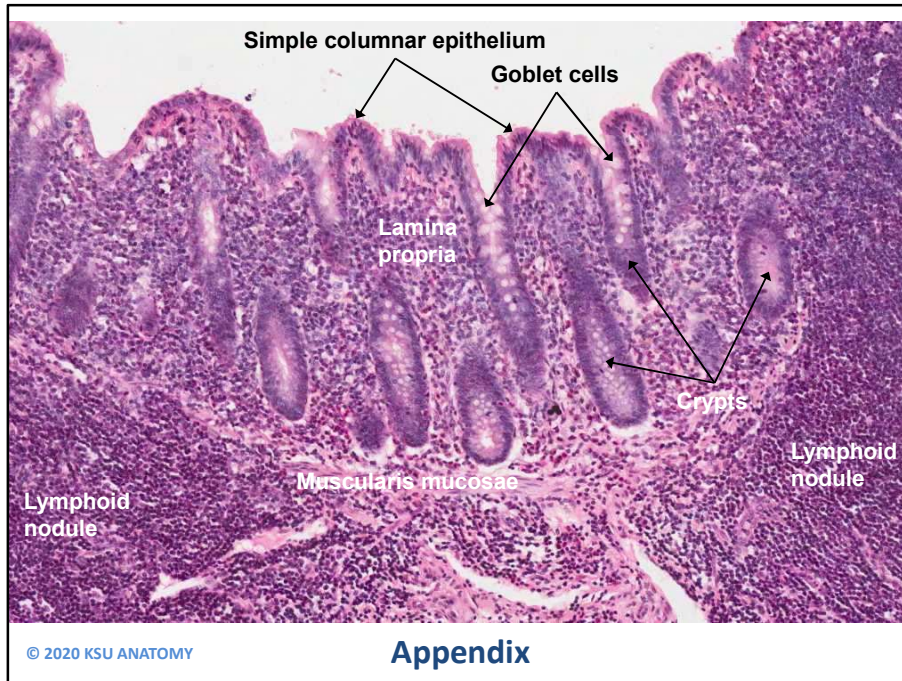
- Crypts.
- NO villi.
- Simple columnar epithelium.
- Numerous goblet cells.
- Lymphoid nodules.
- NO glands in submucosa.
- The crypts contain NO Paneth cells.



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

It is similar to a section in the colon with the following differences:

- More lymphoid nodules: all around, in the submucosa and extending into the lamina propria.
- Crypts are shorter and fewer.
- Fewer goblet cells.
- Muscularis mucosae is ill-defined and may be absent.
- Outer longitudinal muscle layer is continuous.



The epithelium is simple columnar epithelium with few goblet cells.

**Identifying features** of a section in the appendix include:

- Crypts.
- NO villi.
- Simple columnar epithelium.
- Few goblet cells.
- Lymphoid nodules all around.
- NO glands in submucosa.
- The crypts contain NO Paneth cells.



**Thank You**



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