



HISTOLOGY

Lecture 3: Alimentary Canal (3) (Large Intestine)

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Color Guide:

- Black: Slides.
- Red: Important.
- Green: Doctor's notes (Female).
- Blue: Doctor's notes (Male).
- Orange: Explanation.

GIT Block – 432 Histology Team





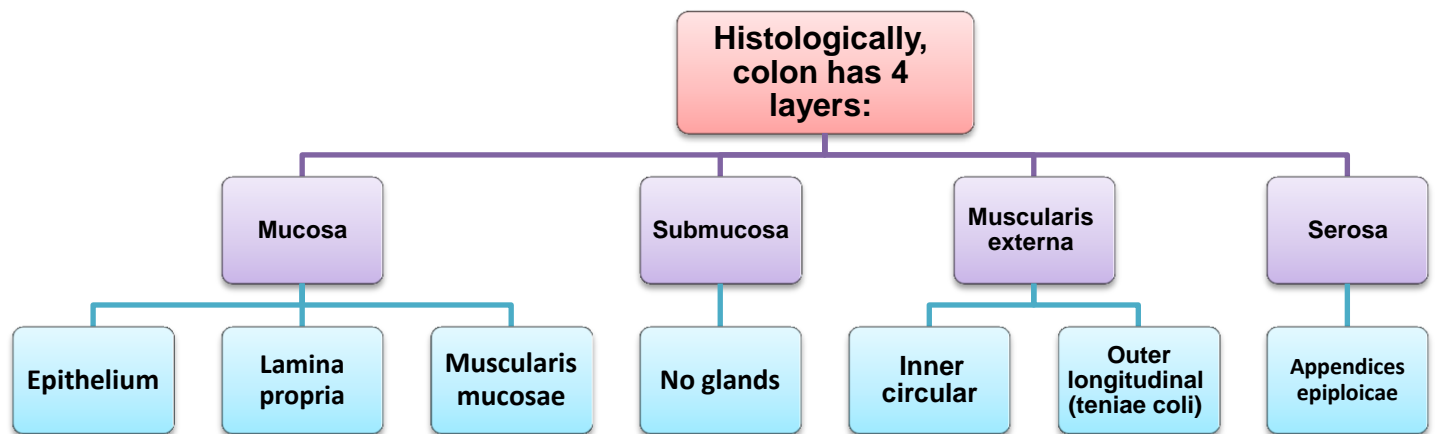
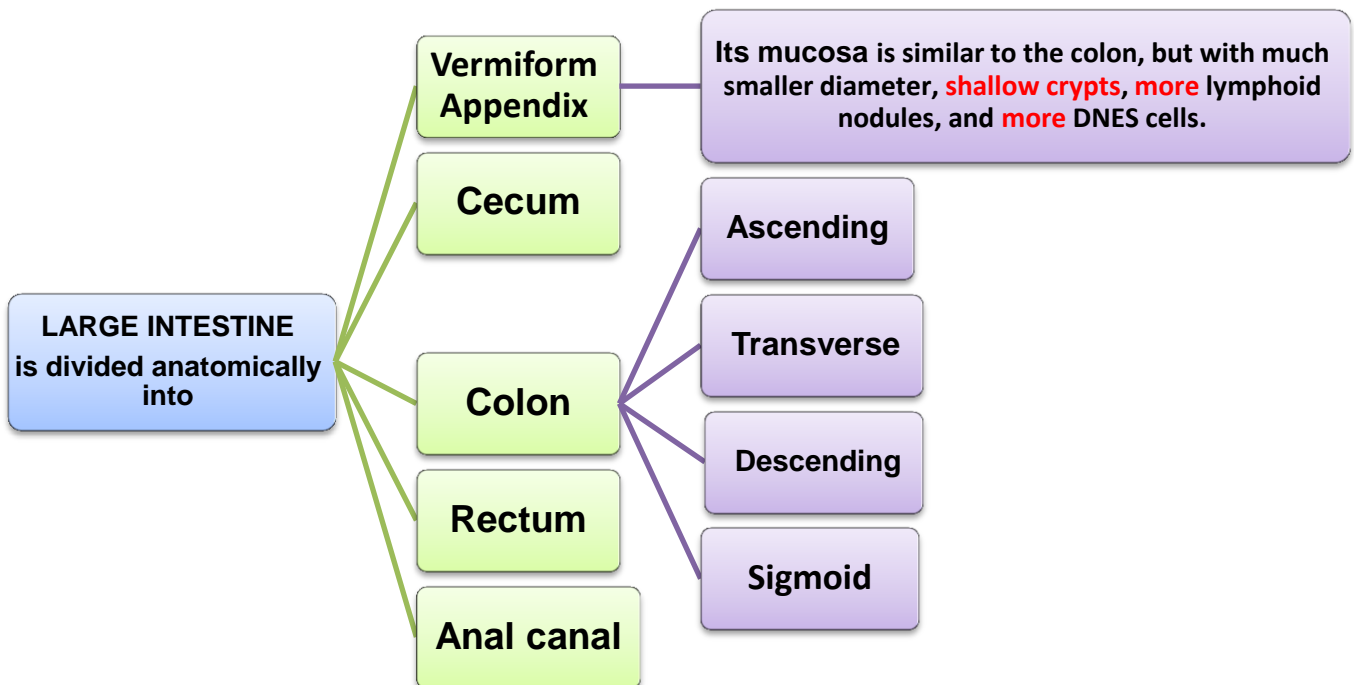
Objectives

At the end of this lecture, you should describe the microscopic structure and the function of:

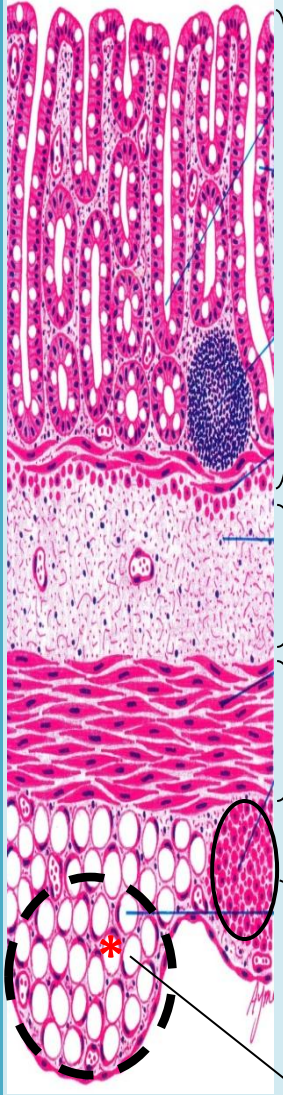
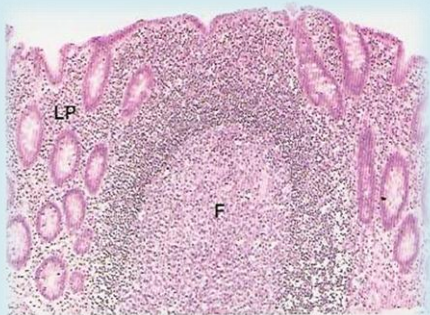
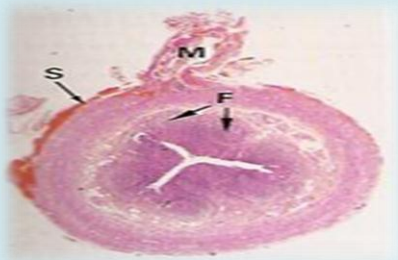
1. Identify the histological structure of the 4 layers of both colon and appendix.
2. Differentiate between the histological features of small and large intestine.



Mind Map



Colon

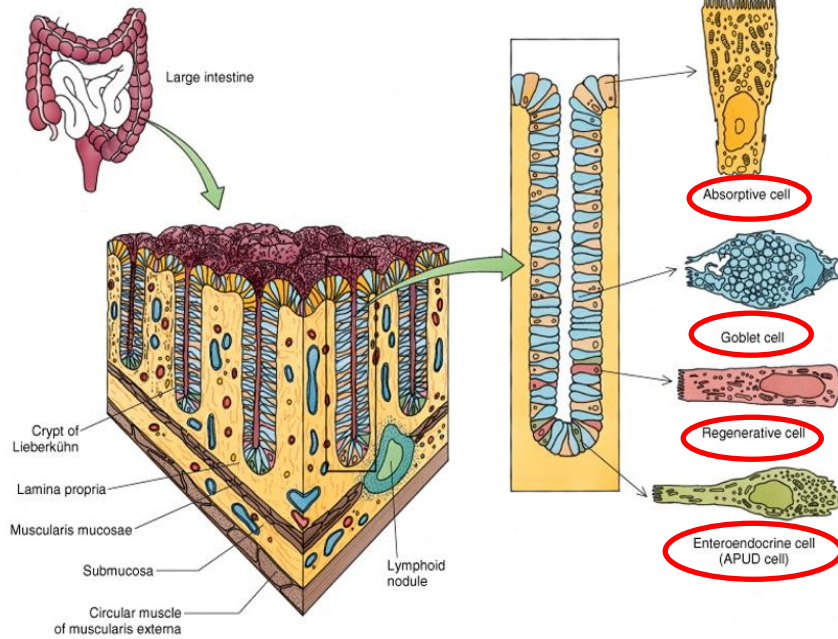
| | Colon | Vermiform Appendix |
|---|---|--|
|  | <p>1-Mucosa: Shows only (deep) crypts (NO intestinal villi).</p> <ul style="list-style-type: none"> – Epithelium: simple columnar epithelium with numerous goblet cells (which act as lubricant for the stool). So if the patient takes antihistaminic drugs which inhibit mucus secretion (no lubrication), rectal bleeding will occur as side effect. – Lamina propria: Connective tissue containing numerous crypts. Cells of the crypts are the same as in small intestine but NO Paneth cells. <ul style="list-style-type: none"> • Lymphatic nodules: frequent. <p>The large intestine has normal flora that's why lymphatic nodules are clear But they are few and scattered.</p> – Muscularis mucosae: 2 layers of smooth muscle. | <p>Similar to the colon, but with much smaller diameter, shallow crypts, more lymphoid nodules (they are all around the circumference), and more DNES cells.</p> <p><u>Cells lining the crypts are:</u></p> <ol style="list-style-type: none"> Surface absorptive cells. Goblet cells. Enteroendocrine cells. M-cells (found in both small & large intestines). Stem cells. <p>- It is invested by serosa.</p> |
| | <p>2-Submucosa: – NO glands.</p> |  |
| | <p>3-Muscularis Externa: – Inner circular (not interrupted) & outer longitudinal (interrupted) smooth muscle layers. – The longitudinal layer is not continuous but in the form of 3 ribbons (teniae coli).</p> |  |
| | <p>4-Serosa: – C.T. covered by mesothelium. – Has fat-filled pouches called appendices epiploicae.</p> | |

- What is the main function of large intestine?
 - Mainly acts as reservoir of waste products.
- Appendix is considered as lymphatic organ (immunity).

Cells Lining the Crypts

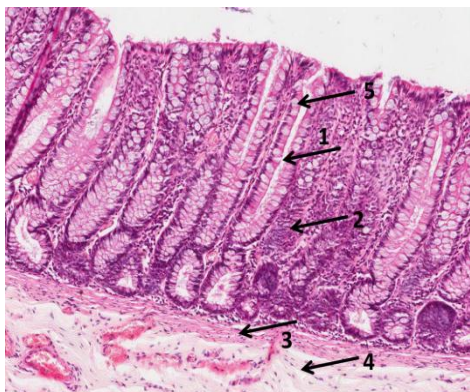
Colon

Vermiform Appendix

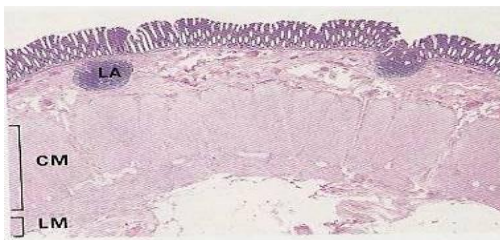


Vermiform Appendix of rabbit.

- It has inverted Y-shaped crypts because they are pushed by lymphatic nodules.

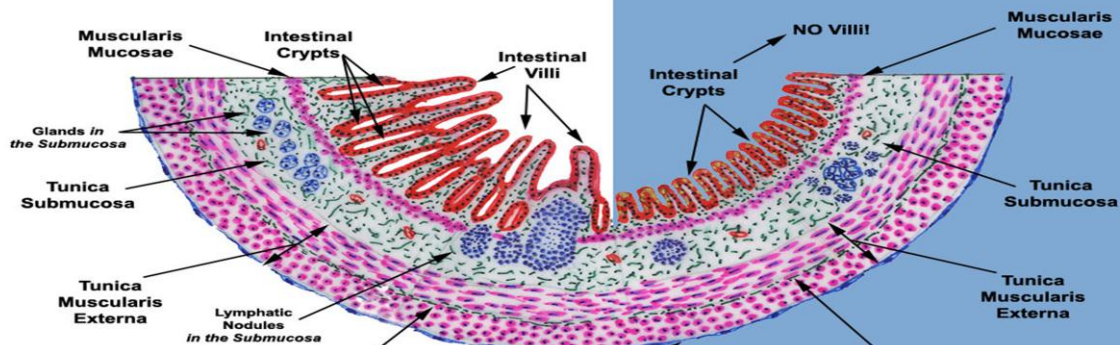


1. Crypt of lieberkuhn.
2. Laminapropria.
3. Muscularis mucosa.
4. Submucosa.
5. Goblet cell.



SMALL INTESTINE

LARGE INTESTINE





Summary

| Colon | Vermiform Appendix |
|---|---|
| <p>1- Mucosa: Shows only crypts(NO villi)</p> <ul style="list-style-type: none"> – With numerous goblet cells. – Lamina propria: containing numerous crypts. Cells of the crypts are the same as in small intestine but NO Paneth cells. <ul style="list-style-type: none"> • Lymphatic nodules: frequent. – Muscularis mucosae: 2 layers of smooth muscle | <p>Similar to the colon, but with much smaller diameter, shallow crypts, more lymphoid nodules, and more DNES cells. It is invested by serosa.</p> |
| <p>2- Submucosa: – NO glands.</p> | |
| <p>3- Muscularis Externa: – The longitudinal layer is not continuous but in the form of 3 ribbons (teniae coli).</p> | |
| <p>4- Serosa: – C.T. covered by mesothelium. Has fat-filled pouches called appendices epiploicae</p> | |



Questions

Q1: What are the modifications of the muscularis externa that is seen on the large intestine?

- a. Teniae coli
- b. Crypts of Lieberkuhn
- c. Striated border
- d. Villi

Q2: Which cells of crypts are not found in the mucosa of the colon?

- a. Surface absorptive cells
- b. M-cells
- c. Enteroendocrine cells
- d. Paneth cells

Q3: Vermiform Appendix is similar to the colon, but with much:

- a. Larger diameter
- b. Deep crypts
- c. More lymphoid nodules
- d. Less DNES cells

Answers:

| | | |
|---|---|---|
| 1 | 2 | 3 |
| A | D | C |



**If you have any questions or suggestions please do not
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Best of luck!