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Histology of Small Intestine and Large Intestine.

Histology of Small Intestine.

The small intestine is an organ located in the gastrointestinal tract between the stomach and large intestine. It is structurally comprised of three parts; the duodenum, jejunum, and ileum.

Function of the small intestine.

The small intestine is chiefly involved in the digestion and absorption of nutrients

It receives pancreatic secretions and bile through the hepatopancreatic duct.

Histology.

The histological structure of the small intestine is similar to the other organs in the digestive tract. There are four main layers found in the small intestine. They are; mucosa(outer layer), submucosa, muscularis external and adventitia/serosa.

\*Mucosa(innermost layer) contains the epithelium, lamina propria, and muscularis mucosae.

I. Cells in the epithelium of the mucosa line the luminal surface of small intestine. There are a number of cells in the epithelium.

Enterocytes: They contain tall columnar cells which have absorptive function

Goblet cell are exocrine glands which secrete mucous

Crypts of Lieberkun: They are glands found in the epithelial lining. They also contain stem cells to give rise to new cells

Enteroendocrine cell synthesize and secrete hormone

Paneth cells form the mucosal defense system by secreting lysozyme and cryptidins

II. Lamina propria has immune function and it contains connective tissues

III. Muscularis Mucosae separates the mucosa layer from the submucosa

\* Submucosa contains connective tissue layer which have blood vessels, lymphatics and the

submucosal plexus

-The mucosa and submucosa form large number of folds( or plicae) arranged in a circular manner in the lumen. The plicae contain micro villi to further increase the surface area which increases absorption.

\* Muscularis Externa consist of two smooth muscle layers; the outer longitudinal layer and inner circular layer. The myenteric plexus lies between them.

\* Adventitia/Serosa comprise of loosely arranged fibroblasts and collagen. Majority of the small intestine is covered by mesothelium and is commonly called serosa.

\* Histology of Large Intestine

The large intestine possesses the basic histological layers of the gastrointestinal tract.

Basic Layers of the large Intestine.

\*Mucosa is arranged as a layer of deep densely packed, straight glands that do not extend villi into the lumen. Near the neck of the large Intestinal gland lie cells primarily responsible for water resorption while the base is populated with goblet cells that produce mucus for lubricating the propulsion of increasingly solidified feces.

I. The large intestine epithelium is a simple columnar epithelium composed of two basic cell types responsible for the distinct functions of water resorption and mucus secretion

II. Intraepithelial lymphocytes combat the rich bacterial flora of the colon

III. The large Intestine lamina propria is richly invested with capillaries and lymphocytes necessary for fluid resorption. Occasionally lymphoid aggregates of MALT(Mucosa associated lymphoid tissue) is also observed.

IV. Muscularis mucosa is a flat surface that lies just beneath the terminal portion of colonic glands known as intestinal crypts. It is also comprise of thin layer of smooth muscle cells.

\* Submucosa is a largely collagenous layer with occasionally aggregation of MALT, blood vessels and lymphatics.

\* Muscularis externa is responsible for the powerful peristaltic activity of the colon required for propulsion of increasingly solid feces. Majority of the large intestine's outer longitudinal layer is bundled into three equidistant strips running the length of the colon termed taeniae coli.