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16/Mhs06/030 Histopathology Techniques

Histopathology Techniques and Museum

MLS 408

Question

1. In a tabular form only, compare and contrast sections of the Gastrointestinal tract.

Answer

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| Section s of the GIT | Oral cavity | Esophagus | Stomach | Small  intestine | Large intestine | Appendix |
| Serosa | The oral cavity is divided in a vestibule, the area "outside" the teeth, and an oral cavity proper.  The entire  oral cavity is lined by a stratified squamous epitheliu  m. The epithelial lining is divided into two broad types:  Masticato ry epitheliu m covers the surfaces involved in the processin  g of food | The esophagus is lined by stratified squamous epithelium without glands. In fish, the esophagus is often lined with columnar epithelium, and in amphibians, sharks and rays, the esophageal epithelium is ciliated, helping to wash food along, in addition to the action of muscular peristalsis.T he tunica adventitia is the shifting outer fascial layer that allows for free mobility of the  esophagus | Lined by simple columnar epithelium,G astric folds and gastric fluids which are 5 in number:pine al cells,chief cells,mucous secreting cells,oxyintic cells,zymoge nic cells.  Serosa consists of a secretory epithelial layer and a thin connective tissue layer that reduce the friction from muscle movements. | The outermost layer of the intestine, the serosa, is a smooth membrane consisting of a thin layer of cells that secrete serousfluid, and a thin layer of connective tissue. In the small intestine, the epithelium (particularly the ileum) is specialized for absorption, with villi and microvillii increasing surface area.  Comprised of loosely arranged  fibroblasts | The serosa is a thin layer of simple squamous epithelial tissue that secretes watery serous fluid to lubricate the surface of the large intestine, protecting it from friction between abdominal organs and the surrounding muscles and bones of the lower torso. | The appendix is contained within the visceral peritoneum that forms the serosa, and its exterior layer is longitudinal and derived from the taenia coli; the deeper, interior muscle layer is circular.  Beneath these layers lies the submucosal layer, which contains lymphoepit helial tissue.  Outsideof  the muscular layers there is a subserosa containing  loose |

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|  | (tongue, gingivae and hard palate). The epitheliu m is keratinize d to different degrees dependin g on the extent of physical forces exerted on it.  Lining  epitheliu m, i.e. non- keratinise d stratified squamous epitheliu m, covers the remaining surfaces of the oral cavity. | while swallowing. It surrounds the esophagus and fills the spaces between the esophagus and surrounding organs such as the trachea, bronchi, and pleural. The following are located here:  Large supply vessels Lymphatic vessels Nerve fascicles of the vagus nerve and the esophageal sympathetic plexus  The esophagus has no serosa which makes it unique to the rest of the gastrointesti  nal tract. |  | and collagen, with the vessels and nerves passing through it. The majority of the small intestine adventitia is covered by mesotheliu m and is commonly called the serosa. |  | connective tissue, vasculature and nerves. The outermost located peritoneum consists of a thin lining of mesothelial cells |
| Muscul aris | The oral mucosa has no musculari s mucosae, and  clearly | Muscularis mucosae consists of scattered bundles of longitudinal muscle fibers and is  thickest in | Contains loose connective tissues,blood vessels and the muscularis in the stomach  differs from | The muscularis in the small intestine is made up of a double layer of smooth  muscle: an | Considerabl y amount of fat and muscularis mucosae has two layers and extends  into the | There is often fatty tissue in the submucosa although it has no function in digestion  the |

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|  | identifyin g the boundary between it and the underlyin g tissues isdifficult. | the esophagus, where it consists of relatively conspicuous bundles of longitudinal muscle fibers. The muscularis mucosae is thinner in the rest of the tract. | that of other GI organs in that it has three layers of muscle instead of two. Under these muscle layers is the adventitia— layers of connective tissue that are continuous with the omenta. The stomach has a third layer of muscularis externa: the inner oblique layer. This helps churn the chyme in the stomach. | inner circular layer and an outer longitudinal layer. The contraction s of these layers promote mechanical digestion, expose more of the food to digestive chemicals, and move the food along the canal.  Consists of  two smooth muscle layers; the outer longitudinal layer and inner circular layer. The myenteric plexus lies between them. | intestinal villi, where the smooth muscle cells form a longitudinal bundle in the centre of the villi. The appearance of the muscularis externa is different from that of the small intestine.  The  muscularis layer surrounds the submucosa and contains many layers of visceral muscle cells that contract and move the large intestine.  Continuous contraction of smooth muscle bands in the muscularis produces lumpy, pouch-like structures known as haustra in the large intestine. | appendix is a significant component of the MALT with abundant lymphocyte s and lymphoid follicles in its laminar propria and submucosa |

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| Sub Mucosa | The submucos a underlyin g the lamina propria of the oral cavity is variable. At times the lamina propria and submucos a are substantiv ely so similar that they merge impercept ibly. The submucos a will be distinguis hed from the lamina propria only by the presence of minor salivary glands in a loose textured tissue. A submucos a may or may not be present deep in the dense layer of the lamina  propria, | The submucosa loosely connects the mucous membrane and the muscular coat. This layer also contains the larger blood vessels, the submucosal (Meissner) nerve plexus, and esophageal glands. | The submucosa is a dense, irregular layer of connective tissue with large blood vessels, lymphatics, and nerves that supports the mucosa. | The submucosa is the layer of dense irregular connective tissue or loose connective tissue that supports the mucosa; it also joins the mucosa to the bulk of underlying smooth muscle.  Connective tissue layer, which contains blood vessels, lymphatics and the submucosal plexus. | The mixture of irregular connective and adipose tissue, numerous blood vessels, and several excellent examples of ganglion cells and nerves of the submucosal plexus. the mucosa is a layer of blood vessels, nerves and connective tissue known as the submucosa, which supports the other layers of the large intestine. | Rich lymphoid tissue in the submucosa that may disrupt the muscularis mucosa, obliterate the lumen and distort the crypt architecture (lymphoid tissue atrophies with age). |

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|  | dependin g on the region of the oral cavity. If present, the submucos a usually contains loose connectiv e tissue and may also contain adipose tissue or salivary glands well as overlying bone or muscle within the oral  cavity. |  |  |  |  |  |
| Mucosa | The oral cavity is lined by a mucous membran e (the oral mucosa) consisting of a stratified squamous epitheliu m, which may or may not be keratinize d, and an underlyin g connectiv e tissue layer, the  lamina | Epithelium is protective (stratified squamous, non- keratinized). Lamina propria is unspecialize d.Is lined by epithelium which is stratified, squamous, and non- keratinizing, for protective purposes.  The 1/3 distal part from the  stomach of | The epithelium is simple columnar, and is organized into gastric pits and glands to deal with secretion | The mucosa is the innermost tissue layer of the small intestines and is a mucous membrane that secretes digestive enzymes and hormones. The intestinal villi are part of the mucosa.  The Mucosa of the small intestine  has various | The surface of the mucosa is relatively smooth as there are no plicae circulares or intestinal villi.Crypts of Lieberkuhn are present and usually longer and straighter than those of the small intestine.  The muscularis mucosa againforms  twolayers. | Abundant lymphocyte s and lymphoid follicles.The inner lining, facing the lumen of the appendix, is covered by a glandular epithelium with intestinal glands that extend into the deeper layers of the mucosa. The glands are lined with simple  columnar |

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|  | propria. The surface is kept moist with mucus produced by the major and numerous minor salivary glands.  The oral  mucosa is well supplied with nerve endings and, on the dorsal surface of the tongue, special sensory endings fortaste. | the esophagus is lined by skeletal muscles and the 2/3 proximal part is lined by smooth muscle. |  | structural features which considerabl y increase the luminal surface and consequent ly support the main function of the small intestine which is the absorption of degraded component s of the food.  Simple columnar epithelium contains intestinal glands microvilli and the mucosa of the small intestine is lined by a simple columnar epithelium which consists primarily of absorptive cells (enterocyte s), with scattered goblet cells and occasional enteroendo crine cells. In crypts, the epithelium  also | It is lined by absorptive columnar epithelium with goblet cells and some enteroendo crine cells and transverse colon and sigmoid colon have a serosa.  The wall of the large intestine is lined with simple columnar epithelium. Instead of having the evagination s of the small intestine (villi), the large intestine has invaginatio ns (the intestinal glands). | epithelium and a high number of mucin producing goblet cells.. |

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|  |  |  |  | includes Paneth cells and stem cells. The epithelium of the villi is made up of tall columnar absorptive cells called enterocytes  , and goblet cells, which secrete mucin, for lubrication of the intestinal contents, and protection of the epithelium. |  |  |