Gastrointestinal Pathophysiology

Laboratory Assignment #1

NAME:

Recommended reading:
1. Lecture notes on Overview of Embryology and Physiology
2. Lecture notes on Non-Neoplastic Diseases of the Esophagus and Stomach

Decide if each of the following statements is true or false?

— ***Meckel's diverticulum*** is the most common type of omphalomesenteric remnant and typically occurs on the mesenteric aspect of the jejunum.

— ***Duodenal atresia*** or complete occlusion of the duodenal lumen is uncommon, but it affects 20-30% of infants with Trisomy 21 and 20% of premature infants.

— In individuals with an ***annular pancreas***, duodenal obstruction may result in infancy, or in the adult life as a result of pancreatitis or malignancy in the annular portion.

— ***Alpha-amylase*** breaks the 1:6 glucosidic linkage of starch molecules.

— ***Omphaloceles*** result from failure of the intestines to return to the abdominal cavity during the tenth week of gestation.

— ***Umblilical hernias*** result when the intestines do return to the abdominal cavity during the tenth week, but later herniate through an incompletely closed umbilicus.

— ***Pepsinogen*** is converted to pepsin by the brush border endopeptidases.

— ***Gastroschisis*** is a linear defect near the median plane of the ventral abdominal wall that permits extrusion of the abdominal viscera without involving the umbilical cord.

— ***Secretin*** and ***CCK*** are secreted by the duodenal mucosa and stimulate pancreatic secretion.

— The three most common types of ***esophageal atresia and tracheoesophageal fistula*** are: proximal EA with distal TEF (85% of cases), pure EA (8-10% of cases), and H-TEF (3-4% of cases).

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Case 1:

The microscopic slide labeled GI-1 shows a histological section from the distal esophagus of a 65-year-old man with long-standing history of heart-burn.[1]

1A) What epithelial cell type present in this section does not belong to normal esophagus or stomach?

1B) Why was this man's esophagus and proximal stomach resected?

Case 2:

Scan the microscopic slide labeled GI-3 under low magnification. Compare the veins with the relatively normal esophageal veins in the slide labeled GI-1.

2A) What is your diagnosis? (two words only!)

2B) Which of the following is the most likely clinical history for the patient from whom this specimen was obtained?

— 55-year-old man with long-standing gastroesophageal reflux disease
— 40-year-old woman with hemophilia
— 45-year-old man with long-standing history of alcohol abuse and abnormal liver function tests

Case 3:

The microscopic slide labeled GI-5 is a section of stomach with a large gastric ulcer.

3A) Focus on the ulcer and the underlying tissue under the microscope. Why do gastric ulcers bleed and present with melena and/or "coffee ground" emesis?

3B) Focus on the surrounding mucosa and fill in the correct sentence below:

The ulcer is located in the antrum because of the presence of _____cells in the mucosa.

The ulcer is located in the corpus because of the presence of _____ cells in the mucosa.

[1] All HST-121 glass slides are available in small white boxes in the HST Skills area.