University of Central Florida (UCF) ZOO3733C Human Anatomy Practice Test 4 (Sample)

Study Guide

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Questions

1. Into which lymphatics does the lymph from the stomach drain?

   A. Hepatic lymphatics

   B. Pyloric lymphatics

   C. Celiac lymphatics

   D. Mesenteric lymphatics

2. Which nerve provides parasympathetic innervation to the stomach?

   A. Vagus nerve

   B. Thoracic splanchnic nerve

   C. Pelvic splanchnic nerve

   D. Phrenic nerve

3. What is the lesser sac also referred to as?

   A. Omphalocele

   B. Omental bursa

   C. Peritoneal pouch

   D. Visceral cavity

4. Which artery does the common hepatic artery drain into?

   A. Right gastric artery

   B. Gastroduodenal artery

   C. Short gastric artery

   D. Left gastroepiploic artery

5. What does the zona reticulata primarily produce?

   A. Mineralocorticoids

   B. Glucocorticoids

   C. Sex hormones

   D. Catecholamines

6. Which cells in the stomach are responsible for hydrochloric acid secretion?

A. Mucous Cells

B. Chief Cells

C. Parietal Cells

D. D Cells

7. What condition is characterized by inflammation of the gastric mucosa?

A. Gastritis

B. Dumping syndrome

C. Peptic ulcer

D. Gastroesophageal reflux disease

8. Renin is produced by which organ in the body?

A. Heart

B. Kidneys

C. Liver

D. Lungs

9. In which abdominal layer does the transversalis fascia reside?

A. Above the umbilicus

B. Below the umbilicus

C. Outside the peritoneum

D. Within the peritoneum

10. What is Hartmann's pouch associated with?

A. Dilation of the gallbladder neck

B. Location of gallstone collection

C. Connection to the small intestine

D. Storage of urine

Answers

1. C
2. A
3. B
4. B
5. C
6. C
7. A
8. B
9. C
10. B

Explanations

1. Into which lymphatics does the lymph from the stomach drain?

A. Hepatic lymphatics

B. Pyloric lymphatics

C. Celiac lymphatics

D. Mesenteric lymphatics

The lymph from the stomach drains into the celiac lymphatics, which is part of the lymphatic system associated with the abdominal organs. The celiac lymphatic system collects lymph from several abdominal structures, including the stomach, spleen, liver, and pancreas. This collection is facilitated by the major lymph nodes associated with the celiac trunk, which supplies blood to these organs. Lymphatic drainage plays a crucial role in the immune response and maintenance of fluid balance in the body. The specific connection to the celiac lymphatics is significant because it demonstrates how lymphatic circulation links various organs, enabling the immune system to monitor and respond to potential pathogens in the abdominal cavity. The celiac lymph nodes help filter lymph before it returns to the bloodstream, ensuring that any threats are addressed effectively. Understanding the specific routes of lymph drainage from different regions of the body, like the stomach to the celiac lymphatics, is vital for comprehending both normal physiological processes and potential pathological conditions that may arise from disruptions in these pathways.

2. Which nerve provides parasympathetic innervation to the stomach?

A. Vagus nerve

B. Thoracic splanchnic nerve

C. Pelvic splanchnic nerve

D. Phrenic nerve

The vagus nerve is indeed responsible for providing parasympathetic innervation to the stomach. This nerve, also known as cranial nerve X, plays a critical role in the autonomic regulation of the digestive system. It provides fibers that synapse in the wall of the stomach and stimulate digestive functions such as increasing gastric secretions and promoting peristalsis, which aids in the movement of food through the gastrointestinal tract. The vagus nerve originates in the brainstem and has extensive pathways that influence various organs, including the heart, lungs, and digestive tract. Its action in the stomach enhances motility and supports the digestive processes, allowing for efficient breakdown and absorption of nutrients. Other nerves mentioned do not provide parasympathetic innervation to the stomach. The thoracic splanchnic nerve mainly transmits sympathetic fibers, and the pelvic splanchnic nerve innervates structures in the lower part of the body rather than the stomach. The phrenic nerve is responsible for diaphragm innervation and does not play a role in the autonomic control of the stomach. Therefore, the vagus nerve is the correct choice as it is the primary parasympathetic nerve influencing stomach function.

3. What is the lesser sac also referred to as?

A. Omphalocele

B. Omental bursa

C. Peritoneal pouch

D. Visceral cavity

The lesser sac is also known as the omental bursa. This space is located behind the stomach and the lesser omentum, and it allows for movement and expansion of the stomach and other adjacent structures. The omental bursa plays an important role in the anatomy of the abdominal cavity, providing a compartmentalized area that can be significant during surgical procedures or in the context of disease processes. Understanding the anatomy of this space is crucial for recognizing how different structures within the abdomen interact and relate to one another. The other terms listed refer to different anatomical structures or conditions. Omphalocele is a congenital condition related to the abdominal wall where the intestines protrude into a sac outside the body. The term peritoneal pouch may refer to various recesses within the peritoneal cavity but does not specifically indicate the lesser sac. Visceral cavity is a broader term that generally describes spaces containing internal organs, not specifically the lesser sac.

4. Which artery does the common hepatic artery drain into?

A. Right gastric artery

B. Gastroduodenal artery

C. Short gastric artery

D. Left gastroepiploic artery

The common hepatic artery is a major blood vessel that branches from the celiac trunk, which supplies blood to the liver, gallbladder, and parts of the stomach and duodenum. One of its key branches is the gastroduodenal artery, which is important for supplying blood to the stomach and the first part of the small intestine (the duodenum). When discussing the anatomy of the common hepatic artery, it is important to understand that this artery diversifies into several branches to ensure the proper perfusion of the abdominal organs. The gastroduodenal artery is a critical part of this branching, supplying the duodenum and parts of the stomach, among other areas. Moreover, other arteries listed do not directly stem from the common hepatic artery. For instance, the right gastric artery is typically a branch of the hepatic artery proper that primarily supplies the lesser curvature of the stomach. The short gastric artery originates from the splenic artery, and the left gastroepiploic artery branches from the splenic artery as well. Thus, recognizing the gastroduodenal artery as a direct continuation and branch of the common hepatic artery places it as the correct answer in the context of its drainage and blood supply functions.

5. What does the zona reticulata primarily produce?

A. Mineralocorticoids

B. Glucocorticoids

C. Sex hormones

D. Catecholamines

The zona reticulata is the innermost layer of the adrenal cortex, and its primary function is the production of sex hormones, specifically androgens such as dehydroepiandrosterone (DHEA) and testosterone. These hormones are responsible for the development of male characteristics and play roles in various physiological processes in both males and females, including sexual function and libido. While the other zones of the adrenal cortex are responsible for different hormone productions—like the zona glomerulosa which produces mineralocorticoids such as aldosterone, and the zona fasciculata which produces glucocorticoids such as cortisol—the zona reticulata is distinctly focused on producing sex hormones. This differentiation is crucial in understanding the hormonal pathways and functions of the adrenal gland in human anatomy and physiology.

6. Which cells in the stomach are responsible for hydrochloric acid secretion?

A. Mucous Cells

B. Chief Cells

C. Parietal Cells

D. D Cells

The secretion of hydrochloric acid in the stomach is primarily the function of parietal cells. These specialized cells, located in the gastric glands of the stomach lining, contain numerous mitochondria and are rich in microvilli to facilitate the secretion process. Parietal cells produce hydrochloric acid (HCl) by combining hydrogen ions and chloride ions within their cytoplasm, which are then transported into the stomach lumen where they play a crucial role in creating the acidic environment necessary for digestion and the activation of digestive enzymes. In addition to aiding digestion, the acidic environment also helps to kill pathogens and provides a favorable environment for the enzyme pepsin, which is produced by chief cells and active in protein digestion. However, it is the parietal cells that are directly responsible for the production and secretion of HCl.

7. What condition is characterized by inflammation of the gastric mucosa?

A. Gastritis

B. Dumping syndrome

C. Peptic ulcer

D. Gastroesophageal reflux disease

Gastritis is the condition characterized by inflammation of the gastric mucosa, which is the lining of the stomach. This inflammation can occur due to various factors, such as infections (often caused by Helicobacter pylori bacteria), excessive alcohol consumption, certain medications (like NSAIDs), and autoimmune disorders. The symptoms of gastritis can include nausea, vomiting, abdominal pain, and bloating. In contrast, dumping syndrome involves rapid gastric emptying and is typically a post-operative complication following gastric surgery. Peptic ulcers are sores that develop on the stomach lining or the first part of the small intestine and are primarily caused by H. pylori infection or the long-term use of NSAIDs. Gastroesophageal reflux disease (GERD) results from the backward flow of stomach acid into the esophagus, leading to symptoms like heartburn and regurgitation, but is not primarily characterized by inflammation of the gastric mucosa itself. Thus, gastritis is the most accurate term to describe the inflammation of the stomach lining.

8. Renin is produced by which organ in the body?

A. Heart

B. Kidneys

C. Liver

D. Lungs

Renin is an enzyme that plays a crucial role in regulating blood pressure and fluid balance in the body. It is specifically produced by the juxtaglomerular cells of the kidneys, which are located in the nephrons. When blood pressure drops or there is a decrease in sodium chloride concentration, these cells secrete renin into the bloodstream. Renin then initiates a cascade of reactions known as the renin-angiotensin-aldosterone system (RAAS). This system aids in increasing blood pressure by promoting vasoconstriction and stimulating the production of aldosterone, which increases sodium and water reabsorption in the kidneys. Therefore, renin is integral to the body's ability to maintain blood pressure and electrolyte balance, highlighting the pivotal role of the kidneys in this physiological process.

9. In which abdominal layer does the transversalis fascia reside?

A. Above the umbilicus

B. Below the umbilicus

C. Outside the peritoneum

D. Within the peritoneum

The transversalis fascia is a layer of connective tissue that lies between the abdominal muscles and the peritoneum. Its primary location is outside of the peritoneum, which is the serous membrane lining the abdominal cavity and covering the abdominal organs. This layer plays a significant role in providing structural support and protection for the abdominal contents. Understanding the geographical distinctions of abdominal layers is crucial for anatomical knowledge. While there are layers above and below the umbilicus, the transversalis fascia is consistently found outside the peritoneum throughout the abdominal region. This characteristic makes the choice regarding its positioning as outside the peritoneum the most accurate. The incorrect options may lead to misunderstandings about the abdominal anatomy. For example, being labeled above or below the umbilicus could imply a change in location that doesn't accurately reflect where the transversalis fascia is found consistently throughout the abdomen. The option concerning being within the peritoneum is misleading, as the transversalis fascia does not reside inside this membrane, but rather provides a boundary separating abdominal wall musculature from the visceral layers.

10. What is Hartmann's pouch associated with?

A. Dilation of the gallbladder neck

B. Location of gallstone collection

C. Connection to the small intestine

D. Storage of urine

Hartmann's pouch is specifically associated with the location where gallstones can accumulate in the biliary system. It is an anatomical feature formed by a dilatation of the gallbladder neck that occurs in cases of cholecystitis or other gallbladder conditions. The pouch creates a space where bile, and potentially gallstones, can settle, especially when the normal flow of bile is obstructed. This accumulation may lead to complications if the stones block bile ducts. The other options do not accurately represent Hartmann's pouch. Dilation of the gallbladder neck relates more to the structural changes in the gallbladder but does not specifically denote the area where gallstones are collected. A connection to the small intestine pertains to structures like the duodenum and is not relevant to Hartmann's pouch. Storage of urine is entirely unrelated, as that function pertains to the bladder and urinary system. Thus, the primary role of Hartmann's pouch relates to its association with gallstone collection.