

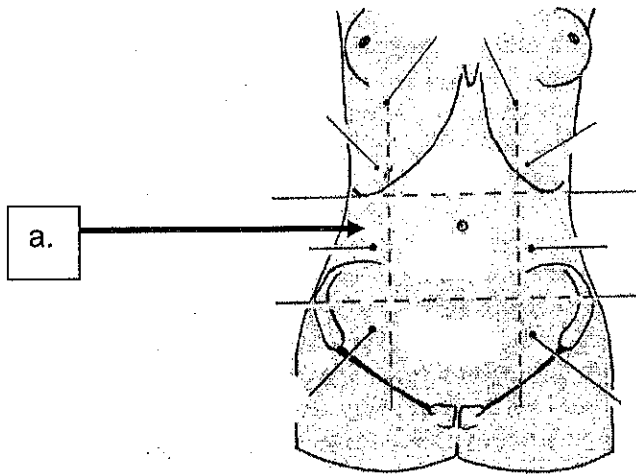
STRUCTURAL BASIS OF MEDICAL PRACTICE
EXAMINATION 3

September 20, 2007

PART I. Answer in the space provided. (5 pts)

1. Identify the region. (0.5 pt)

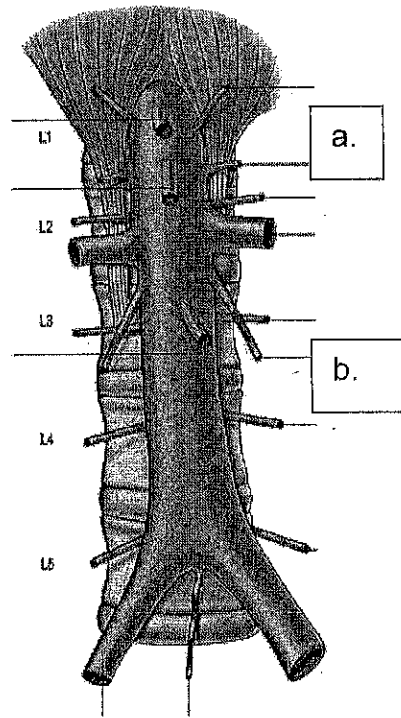
a. _____



2. Identify the structures. (1 pt)

a. _____

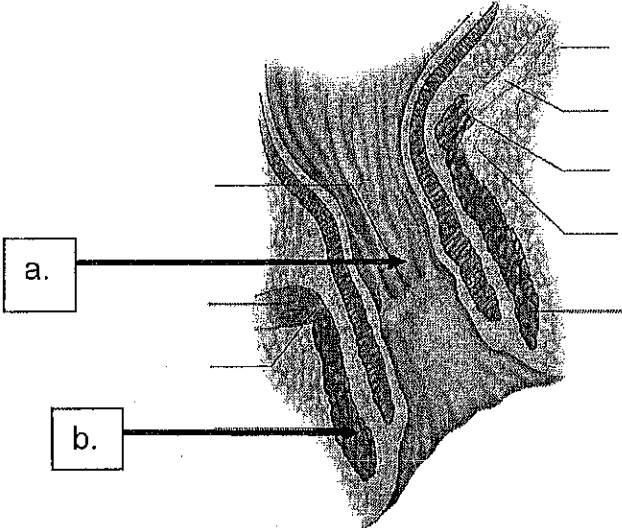
b. _____



3. Identify the structures. (1 pt)

a. _____

b. _____

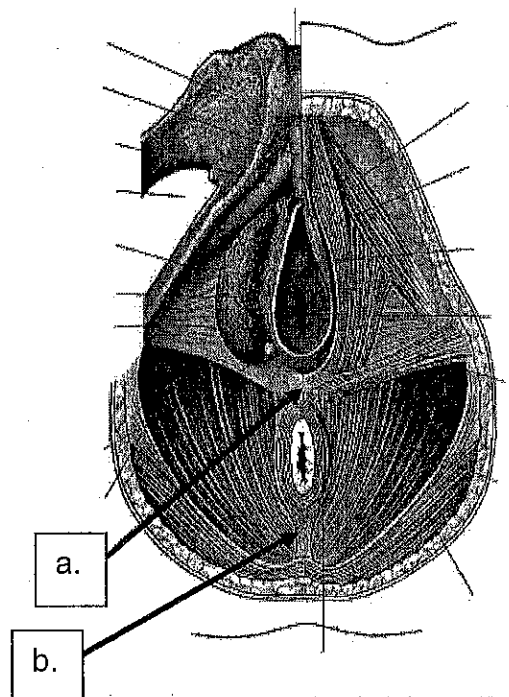


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4. Identify the structures. (1 pt)

a. _____

b. _____

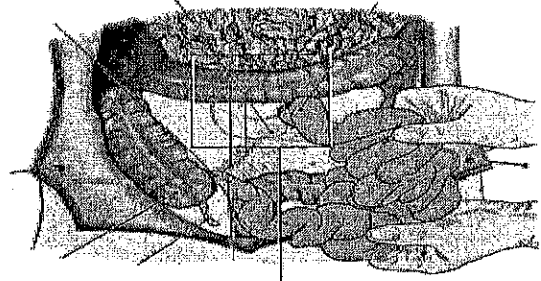


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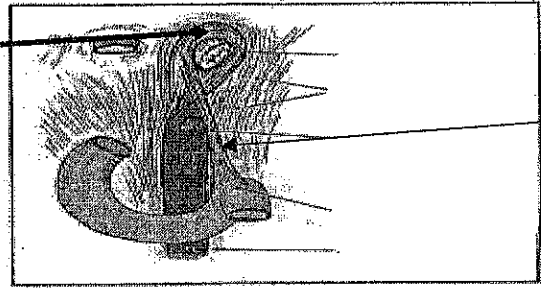
5. Identify the structures. (1 pt)

a. _____

b. _____



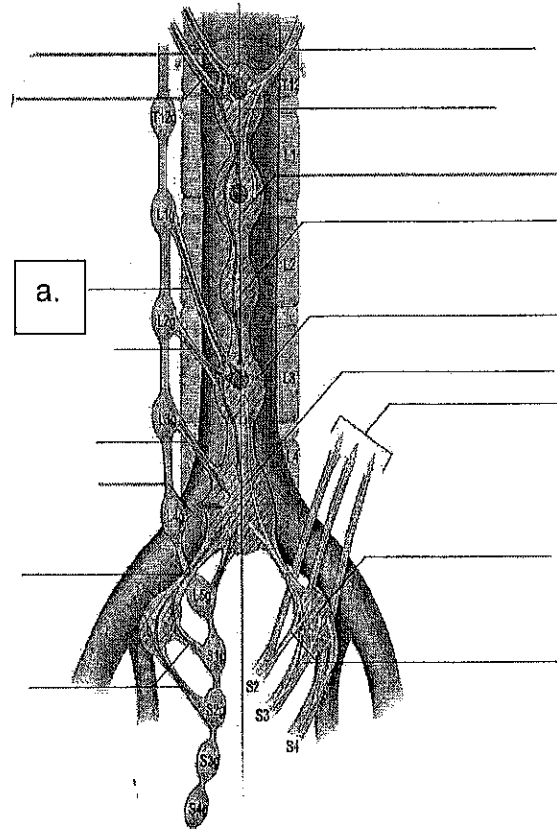
a.



b.

6. Identify the structures. (0.5 pt)

a. _____



Part II. Circle the correct answer. All, none, or some may apply. (39 pts)

1. With respect to the abdominal wall:

- a. Nerves and vasculature of the anterior abdominal wall travel in the neurovascular plane, located between the internal oblique and transversus abdominis muscles.
- b. The paraumbilical veins in the anterior abdominal wall are located in the tela subcutanea.
- c. Scarpa's fascia continues onto the scrotal sacs as tunica albuginea.
- d. Superior to the arcuate line the posterior lamina of the internal oblique aponeurosis and the transverse abdominis aponeurosis contribute to the tendinous intersections.
- e. Transversalis fascia lies deep to the peritoneum in the anatomical position.
- f. The transversus abdominis muscle arises, in part, from the lateral one-third of the inguinal ligament.
- g. The lacunar ligament represents the more medial rolled-under fibers of the conjoint tendon (falx inguinalis).
- h. Inferior to the arcuate line the transversalis fascia lies deep to the rectus abdominis muscle.
- i. Intercostal nerves originating from T7-12 serve in part for the innervation of muscles in the anterolateral abdominal wall.
- j. The iliohypogastric nerve traverses the inguinal canal and emerges at the superficial inguinal ring.
- k. The fundiform ligament of the penis is composed of the membranous layer of the deep fascia.

2. In regard to the inguinal region:

- a. The inguinal ligament forms the floor of the inguinal canal.
- b. The spermatic cord contains the obliterated processus vaginalis.
- c. Indirect, but not direct, inguinal hernias can emerge through the superficial inguinal ring.
- d. The neck of an indirect inguinal hernia is located medial to the medial umbilical ligament.

- e. The round ligament (ligamentum teres) of the female is located in the inguinal canal.
- f. Dartos tunic consists of smooth muscle that is innervated in part by the posterior branches of the both the pudendal and the posterior femoral cutaneous nerves.
- g. The artery to the cremaster muscle arises from the inferior epigastric artery.
- h. Lymphatics from the scrotum drain to the superficial inguinal lymph nodes.
- i. The pampiniform plexus of veins of the testis drains into the testicular vein.
- j. Parasympathetic innervation of the testis is by way of the vagus nerve.
- k. The sympathetic innervation to the testes is by way of the lumbar splanchnic nerves.

3. With respect to the abdominal vasculature:

- a. The left and right gastric veins drain into the splenic vein which drains into the portal vein.
- b. The dorsal pancreatic artery arises from the splenic artery and descends posterior to the tail of the pancreas.
- c. The portal vein courses through the gastroduodenal ligament to drain into the liver.
- d. The right testicular vein drains into the inferior vena cava inferior to the renal vein.
- e. The common hepatic artery is retroperitoneal.
- f. Vasa recta in the ileum are shorter than those in the jejunum.
- g. The head of the pancreas and the splenic vein are inferior to the trunk of the celiac artery.
- h. The left colic artery has a course that is both intraperitoneal and retroperitoneal.
- i. The inferior pancreaticoduodenal artery does not contribute branches to the marginal artery (of Drummond).
- j. The short gastric arteries course in the gastrosplenic ligament.

4. With respect to the abdominal viscera:

- a. According to internal morphology of the liver, the caudate lobe and a part of the quadrate lobe belong to the left lobe.
- b. The falciform ligament is formed by peritoneum.
- c. Cancerous growths of the right lobe of the liver may have an impact on the right kidney.
- d. The duodenum is in contact with the medial border of the left kidney.
- e. The vagus nerve serves as the parasympathetic nerve supply to the duodenum.
- f. The caudate lobe of the liver forms the superior boundary of the Epiploic foramen of Winslow.
- g. The chief pancreatic duct is the remainder of the dorsal pancreas in the fetus.
- h. The left (lateral) paracolic gutter is closed cranially by the phrenicocolic ligament.
- i. Problems in venous drainage by way of the portal vein may produce esophageal varicosities related to connections between the left gastric vein and the esophageal veins.
- j. The 3rd part of the duodenum is crossed ventrally by the transverse colon.

5. In regard to the kidney, suprarenal glands, and abdominal autonomics:

- a. The ureter lies posterior to the renal vein.
- b. The renal columns terminate in the medulla as renal papillae.
- c. The right renal artery passes posterior to the inferior vena cava.
- d. The kidney, but not the suprarenal gland, has an outer cortex and an inner medulla.
- e. The sacral splanchnics serve as the parasympathetic innervation of the kidneys.
- f. The renal sinus contains perirenal fat.
- g. Referred pain of the appendix is located in the right iliac fossa.
- h. The left renal vein passes anterior to the aorta and drains into the inferior vena cava.

6. With respect to the pelvic viscera and topography:

- a. The pelvic inlet of the female is larger than in the male.
- b. The false pelvis is deeper in the female than in the male.
- c. Periprostatic fascia is related to a condensation of the visceral pelvic fascia.
- d. The Cardinal ligament is formed by a condensation of the parietal pelvic fascia.
- e. The detrusor muscle is innervated by the pudendal nerve.
- f. The uterus is normally in an anteflexed and anteverted position.
- g. The fascia of Denonvillier is transversalis fascia.
- h. The seminal vesicles drain into the prostatic venous plexus.
- i. The seminal colliculus is located inferior to the uvula but superior to the urethral crest.
- j. The suspensory ligament of the ovary is derived from the gubernaculum

7. In regard to the perineum and pelvic nerves/vessels:

- a. The region superior to the pectinate line is supplied with afferent innervation by the somatic nerve fibers of the pudendal nerve.
- b. The "nervi erigentes" refers to the somatic afferents in the pudendal nerve that are sensitive to touch.
- c. Defecation includes reflex arcs involving both the parasympathetics and the pudendal nerve.
- d. An automatic "cord" bladder results when spinal cord transection occurs superior to S2-4.
- e. Helicine arteries in the sphincter urethra are stimulated to vasodilate by the parasympathetic nervous system.
- f. The pelvic parasympathetic nerves have gray rami communicans.
- g. The left portion of the transverse colon is innervated, in part, by parasympathetic innervation from the sacral splanchnic nerves.
- h. The posterior scrotal/labial nerves are derived from the pudendal nerve.
- i. The membranous urethra in the male is the narrowest and least dilatable part of the urethra.

- j. The bulbospongiosus muscle is a skeletal muscle.
- k. The transverse perineal ligament is formed by the fusion of the superior and inferior fascia of the urogenital diaphragm.
- l. The greater vestibular glands are located in the superficial pouch.

8. With regard to the thoracic diaphragm

- a. The lesser splanchnic nerve passes from the abdomen to the thorax through the esophageal hiatus.
- b. The azygous vein passes superiorly from the abdomen to the thorax through the aortic hiatus.
- c. The right and left crus of the diaphragm form the lumbocostal trigone.
- d. Pain from the central portion of the diaphragm can be referred to the base of the neck and shoulder.
- e. The sympathetic trunks pass from the thorax to the abdomen under the medial lumbocostal arches (arcuate ligaments).
- f. The right crus of the diaphragm contributes to the inferior vena cava hiatus.

Part III. Indicate your understanding of the following. Answer in the space provided. (20 pts)

1. Hepatorenal recess (Subhepatic space). (4 pts)

2. Anterior rectus sheath. (4 pts)

3. Superficial inguinal ring. (4 pts)

4. Superior pancreaticoduodenal artery. (4 pts)

5. Ligamentum venosum. (4 points)

Part IV. Answer in the space provided (including the back of the page or the additional pages for each question). (36 pts)

1. A 59-year old Anatomy professor is taken to the emergency room with sudden onset severe abdominal pain while eating dinner. His past medical history includes peptic ulcer disease. In the emergency department, a CT scan of the abdomen reveals a perforated ulcer in the posterior wall of the stomach, with evidence of gastric contents in the greater and lesser sacs. The patient is placed on intravenous antibiotics, intravenous fluids, and emergency surgery is performed to cleanse the abdomen and repair the ulcer. After surgery you are asked to review the case at Surgical Grand Rounds. **Define the boundaries (including spaces and/or recesses) of the lesser sac (omental bursa). Explain why damage to the stomach would produce sharp pains in the abdomen. Account for food particles also detected in the greater sac despite erosion of the posterior stomach wall. Discuss the pathway of materials that pass into the greater sac, and the location of these fluids/food contents with respect to body position. (12 pts)**

2. While serving as a resident in emergency medicine, a 40-yr old female is admitted with severe pains in the abdomen. Taking a history and physical, the patient reports vomiting what appeared to be coffee grounds; emesis (vomiting) of precipitated blood clots rendered black by the action of gastric acid indicates a hemorrhage of the upper gastrointestinal tract. A diagnosis of carcinoma of the pyloric region is made, and the patient is designated for an immediate partial resection of the stomach. At morning conference the day following the operation, you are asked to: **Review the structure of the stomach. Include the anatomy of the stomach, supporting elements, vasculature, lymphatic drainage, innervation, and relationship to surrounding structures and spaces.** (12 pts)

3. A 58-yr old female is diagnosed with cancer in both ovaries. Prior to surgery, you are asked to provide a comprehensive review of the ovary at Grand Rounds. **Discuss the anatomy of the ovary and include relationships (6 directions), structure, surfaces, supports, vasculature, innervation, and lymphatic drainage. (12 pts)**