

BLOCK EXAMINATION II

SEPTEMBER 25, 1998

PART I. Answer in the space provided. (17 pts)

1. Identify the structures. (2 pts)

- a. _____
- b. _____
- c. _____
- d. _____

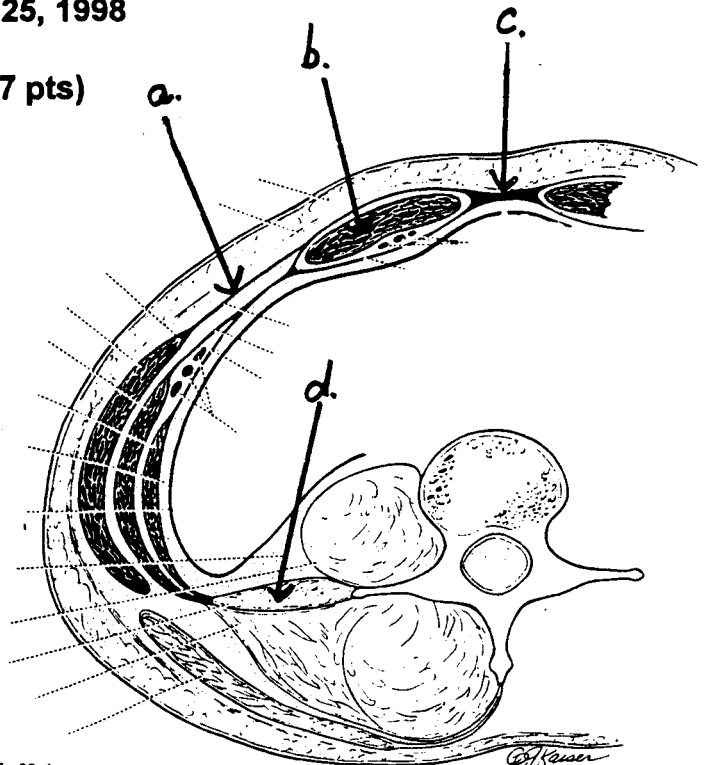


FIGURE 23-7.
A schematic transverse section of the abdomen to show the layers of the abdominal wall.

2. Identify the structures. (3 pts)

- a. _____
- b. _____
- c. _____
- d. _____
- e. _____
- f. _____

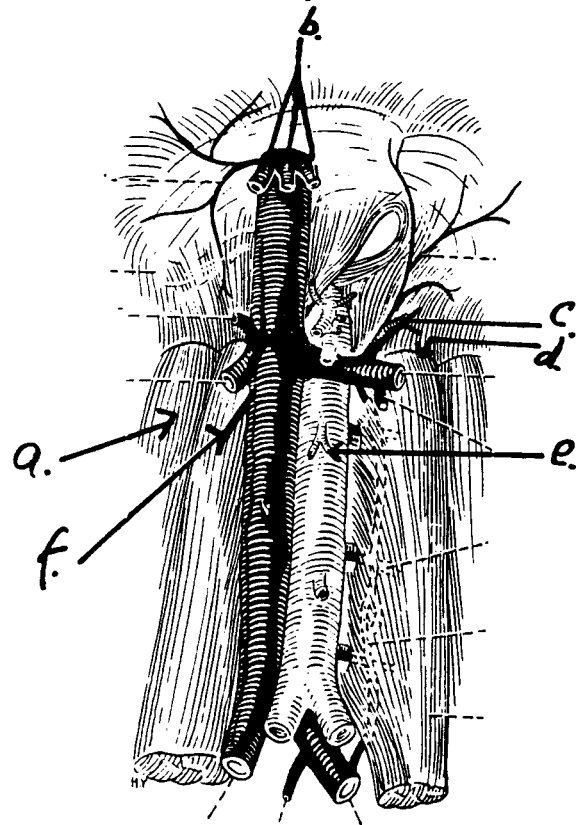


FIGURE 25-9.
The inferior vena cava and its tributaries.

Answer in the space provided.

3. Identify the spaces/areas. (1.5 pts)

a. _____

b. _____

c. _____

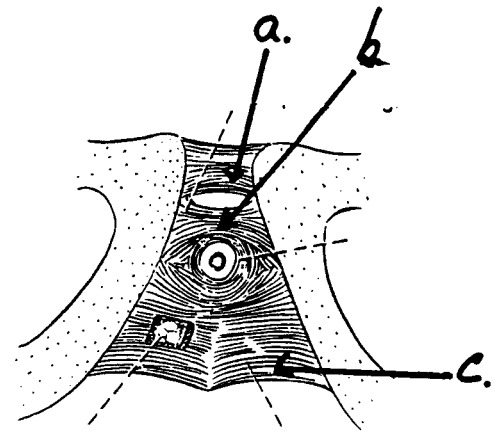


FIGURE 28-7.
The muscle of the urogenital diaphragm of the male

4. Identify the structures. (3 pts)

a. _____

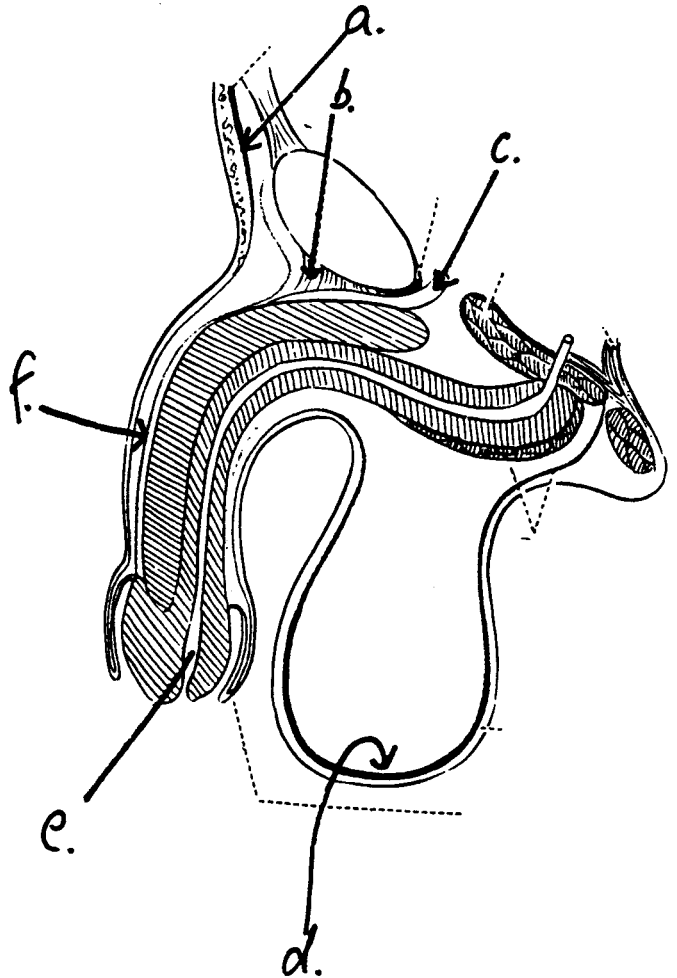
b. _____

c. _____

d. _____

e. _____

f. _____



Answer in the space provided.

5. Identify the structures. (1.5 pts)

a. _____

b. _____

c. _____

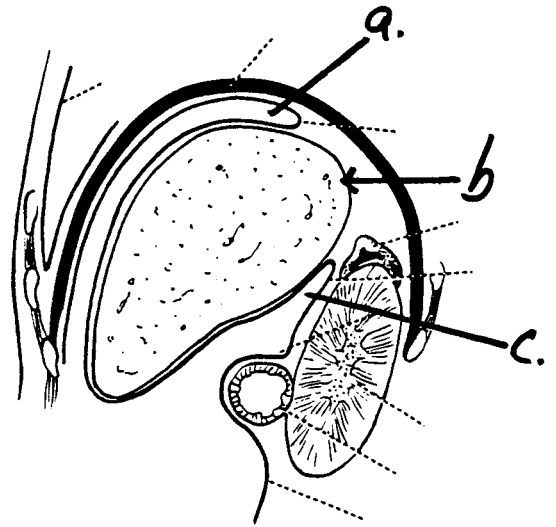


FIGURE 23-18.
Diagram of the subphrenic and subhepatic recesses.

6. Identify the structures. (3 pts)

a. _____

b. _____

c. _____

d. _____

e. _____

f. _____

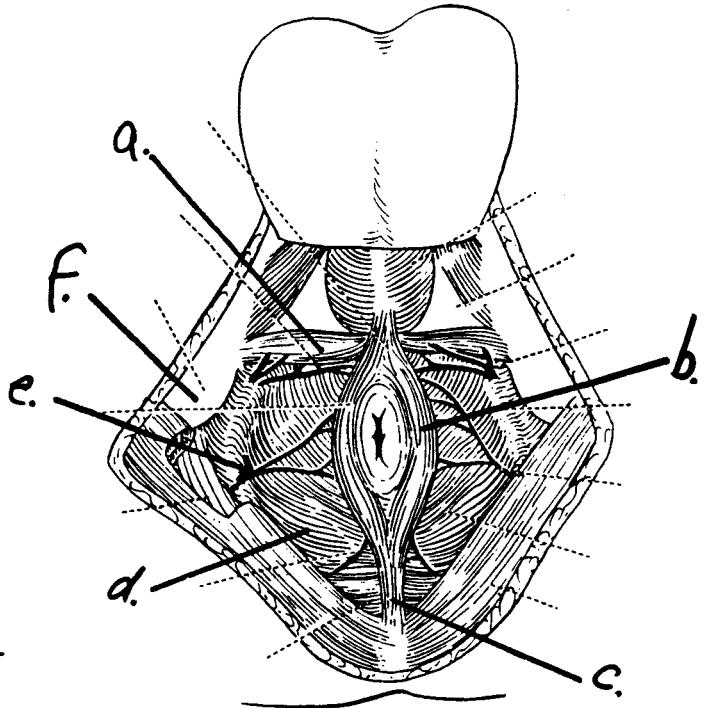


FIGURE 28-3.
Muscles and nerves of the anal region.

Answer in the space provided.

7. Identify the arteries. (3 pts)

a. _____

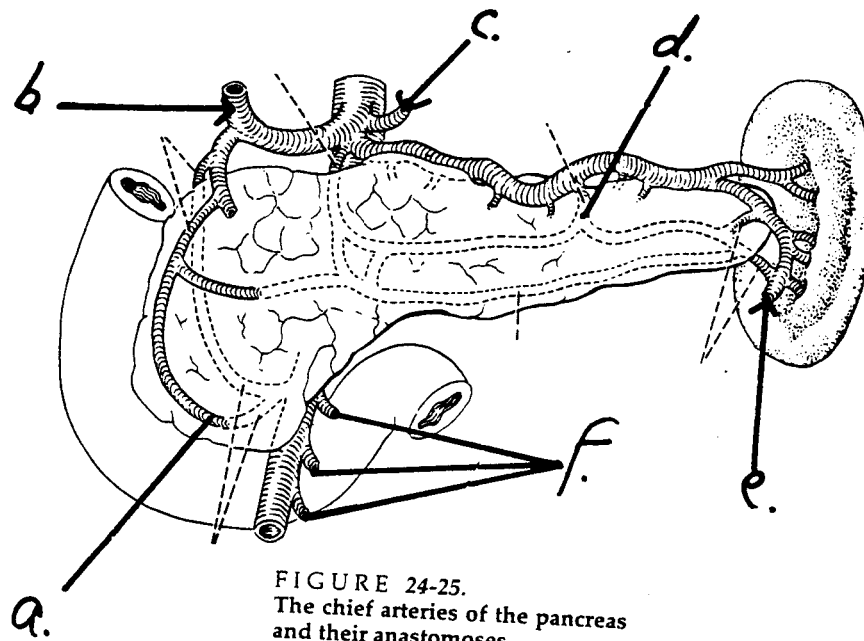
b. _____

c. _____

d. _____

e. _____

f. _____



PART II. Circle the correct answer. All, none, or some may apply. (25 pts)

1. With respect to the abdominal wall:
 - a. Below the arcuate line the rectus abdominis muscles have the aponeurosis of the transversus abdominis muscle as a posterior boundary.
 - b. The thoracoabdominal nerves proceed in the anterior abdominal wall within the extraperitoneal connective tissue.
 - c. A key dermatome to remember is that T10 is in the region of the umbilicus.
 - d. The parietal peritoneum contributes to the formation of the femoral sheath.
 - e. The inferior limit of the costal margin is at the lower border of 7th costal cartilage.
 - f. The fundiform ligament of the penis is derived from the membranous layer of the tela subcutanea.
 - g. Tendinous intersections are associated with the posterior rectus sheath above the umbilicus.
 - h. The cremasteric artery is a branch of the inferior epigastric artery.
 - i. The deep circumflex artery is a branch of the internal iliac artery.
 - j. The falx inguinalis (conjoint tendon) is found above the arcuate line.
2. In regard to the inguinal canal:
 - a. The ilioinguinal and iliohypogastric nerves can be found in the inguinal canal.
 - b. An abnormal amount of serous fluid (hydrocele) may accumulate between the internal spermatic fascia and the cremasteric muscle/fascia.
 - c. In a direct inguinal hernia the obliterated umbilical artery lies lateral to the herniated mass.
 - d. Transversalis fascia is not associated with the herniated mass of a direct inguinal hernia.
 - e. The contents of an indirect inguinal hernia are found between the internal spermatic fascia and the parietal layer of the tunica vaginalis.

- f. The visceral layer of the tunica vaginalis is closely applied to the testis but not to the epididymis.
 - g. In the adult male the inguinal canal is approximately 6 inches.
 - h. Because the ovary does not descend during development, there is no processus vaginalis.
 - i. The testicular arteries arise from the aorta just below the renal arteries.
 - j. The testes is innervated by the vagal parasympathetic nerves.
3. With respect to the abdomen, pelvis, and perineum:
- a. The arcus tendineus is a specialization of the perivisceral fascia of the obturator internus.
 - b. The superior fascia of the levator ani (parietal pelvic fascia) is parietal peritoneum.
 - c. The pubic symphysis is a fibrocartilaginous joint.
 - d. The subpubic angle is wider and shallower in the female than in the male.
 - e. The anterior recess of the ischiorectal fossa is located between the pelvic and urogenital diaphragms.
 - f. The pudendal canal is formed by a specialization of the extraperitoneal connective tissue.
 - g. The sensory nerves going to external hemorrhoids are related to the somatic nervous system.
 - h. The detrusor muscle is a smooth muscle.
 - i. The puboprostatic ligament is composed of a condensation of visceral pelvic fascia.
 - j. The median umbilical fold covers the urachus.
4. With regard to abdominal development and vasculature, and the duodenum, liver, and gall bladder:
- a. At 10 weeks of age there is a 180 degree clockwise rotation of the gut that occurs about the axis of the superior mesenteric artery.

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- b. The lesser curvature of the stomach is turned to the right following a 90 degree counterclockwise rotation during development.
 - c. According to studies on the internal morphology of the liver, the quadrate lobe and left part of the caudate lobe are part of the right lobe.
 - d. Developmentally, the chief pancreatic duct was part of the ventral contribution of the pancreas.
 - e. The tail of the pancreas enters the lienorenal ligament and is intraperitoneal.
 - f. The first part of the duodenum is enclosed by peritoneum.
 - g. The suspensory muscle of the duodenum (Ligament of Treitz) arises from the celiac arterial trunk and from the right crus of the diaphragm.
 - h. The root of the mesentery begins at the duodenojejunal flexure.
 - i. The short gastric veins course between the liver and the fundus of the stomach by way of the gastrolial ligament.
 - j. The phrenicocolic ligament is a derivative of the dorsal mesentery.
5. With regard to abdominal and pelvic nerves and vasculature:
- a. The helicine arteries are innervated by the vagal parasympathetic nerves.
 - b. The ischiocavernosus is a skeletal muscle that contracts to assist in maintaining erection of the penis/clitoris.
 - c. Transection of the spinal cord below S4 results in a automatic or "cord" bladder".
 - d. The puborectalis muscle is responsible for the "puborectal sling" and is innervated by the "nervi erigentes" (i.e., parasympathetics from S2-4).
 - e. The inferior hypogastric plexus is formed by the hypogastric nerves and the pelvic and sacral splanchnic nerves.
 - f. Peristaltic movement of the descending colon is stimulated by the lumbar splanchnic nerves.
 - g. Referred pain only occurs with the autonomic nervous system.

- h. In Hirschsprung's disease (megacolon), the narrowing of a portion of the large intestine is due to an increased number of sympathetic nerves in the dysfunctional area.
- i. The crus of the penis is composed of erectile tissue that is innervated by the somatic contribution of the pudendal nerve.
- j. Portal hypertension may lead to a build-up of blood from the left gastric artery to the esophageal arteries, and could result in esophageal varicosities.

PART III. Answer in the space provided, including the back of each page. (58 pts)

1. A 57-year old professor is taken to the emergency room with sudden and severe pain in the abdomen. He has a history of stomach ulcers. Further tests and examinations reveal a perforation of the posterior wall of the stomach, with gastric contents spilling into the lesser sac. **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. Discuss the pathway of materials that appear in the greater sac, and provide information about the location of these fluids/food contents with respect to body position. (10 pts)**

2. You are presenting a case history of a 53-year old woman with a suspected cancer of the right ovary. At Grand Rounds you are asked to discuss the supporting structure(s) of the ovary, relationship of the ovary to the peritoneum and other organs, and innervation (sensory and motor), vascularization, and lymphatic drainage of the right ovary. (10 pts)

3. While riding a bicycle, a 14-year old boy skids on a rain-soaked street, lacerates the perineal membrane (inferior fascia of the urogenital diaphragm) and damages the urethra. In the emergency room the patient is found to have extravasation of urine. **Discuss the boundaries and fascial relationships that define the accumulation of urine. In your discussion be specific as to terminology of the fascial planes and elaborations.** (8 pts)

4. While serving as a resident in emergency medicine a 35-year old male is brought in by ambulance after an automobile accident. You suspect trauma and bleeding from the internal pudendal artery. Discuss the course and branches of the internal pudendal artery in the pelvis, gluteal region, ischioirectal fossa, and perineum. Please include anatomical relationships of the artery, fascial layers involved, as well as spaces/recesses encountered by the internal pudendal artery and its branches. (8 pts)

5. A 42-year old male walks into the emergency room at 7:00 a.m. and complains of a very bad pain on the left side of his back that began the previous evening. You determine that the pain emanates from dermatomes related to T12 to L2, and the discomfort radiates to the groin. An intravenous pyelogram (urogram; an injection of contrast material that is filtered by the kidneys) reveals retarded passage of the contrast material through the left kidney and a 8 x 10 mm radiopaque mass (renal calculus = kidney stone) is observed in the left kidney. Before proceeding clinically, knowledge about the left kidney must be reviewed. **Discuss the structure, relationship(s) to the peritoneum and surrounding viscera and at the hilum, sensory and motor innervation, vascular supply, and lymphatic drainage of the left kidney. (12 pts)**

6. While serving as a 2nd year resident in emergency medicine, a 30-year old female is brought in by ambulance to your service. She has been in an automobile accident and complains that the steering wheel pushed against her lower thoracic/upper abdominal region causing pain and discomfort. You know that blunt nonpenetrating injury to the lower thoracic/upper abdominal area may be associated with lacerations of the diaphragm, and that immediate or delayed diaphragmatic hernia may result. **Indicate your understanding of the anatomy of the diaphragm and include discussion of muscles, ligaments, site(s) of weakness and attachment, the location and structures coursing between the thorax and abdomen, as well as the innervation, vascular supply, and lymphatics of the diaphragm. (10 pts).**