

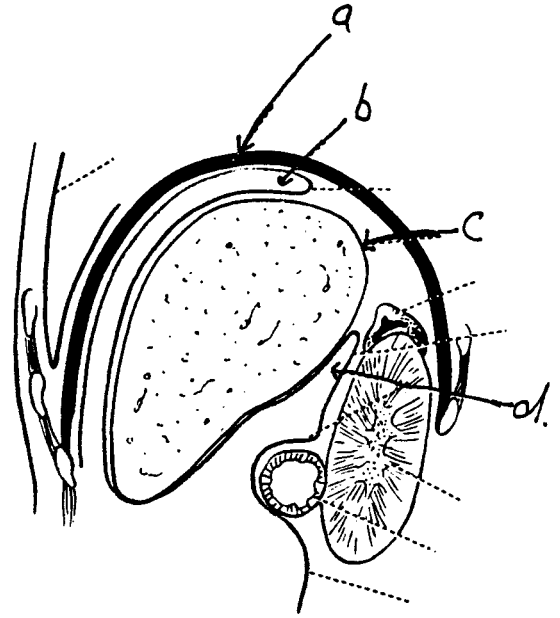
GROSS ANATOMY EXAMINATION II

SEPTEMBER 20, 1996

PART I. Answer in the space provided. (11 pts)

1. Identify the structures/areas indicated. (2 pts)

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



2. Identify the structures. (2 pts)

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

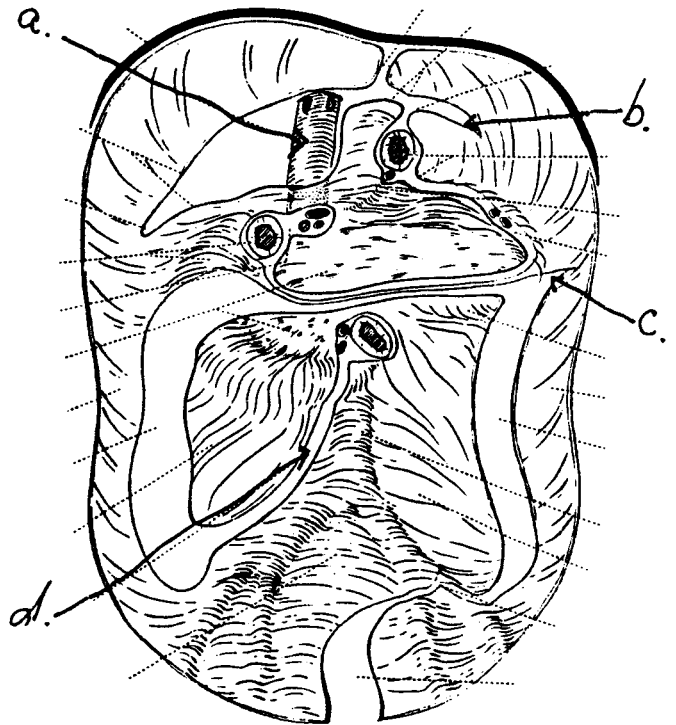


FIG. 23-20. Peritoneal attachments to the posterior abdominal wall and the diaphragm. The duodenum and pancreas have been left *in situ*, but all the other parts of the digestive system have been removed.

Answer in the space provided.

3. Identify the structures. (2 pts)

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

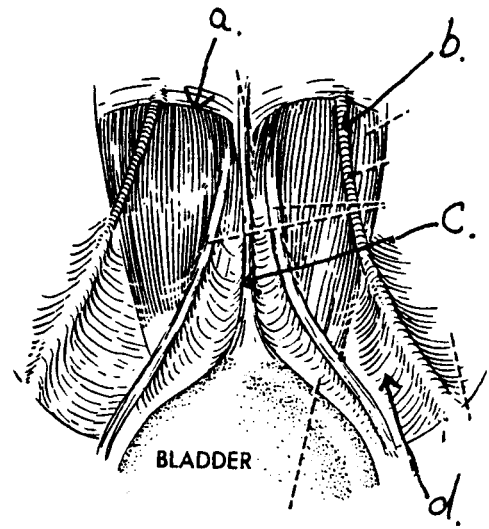


FIG. 23-26. View of the posterior surface of the lower part of the anterior abdominal wall, showing the structures that produce the folds and fossae related to the bladder and inguinal region.

4. Identify the structures. (3 pts)

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

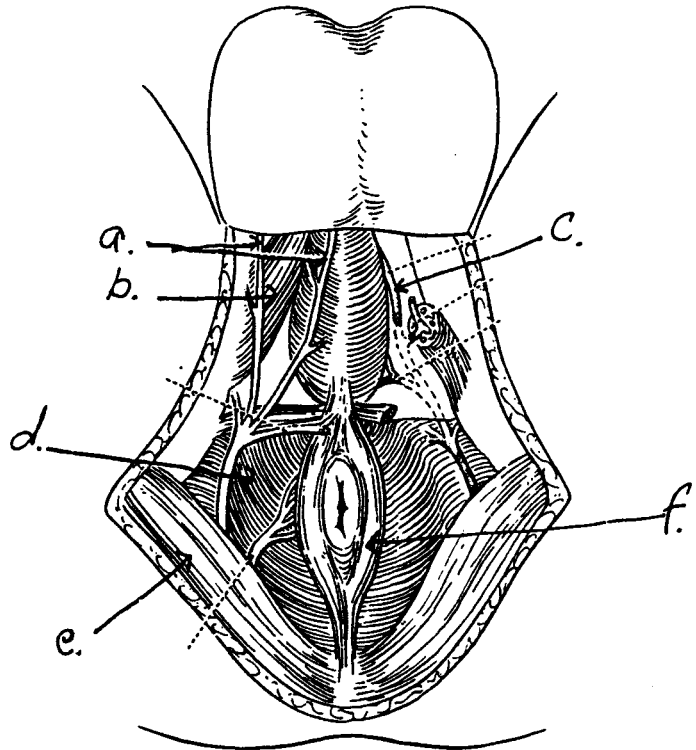


FIG. 28-22. The internal pudendal artery.

Answer in the space provided.

5. Identify the structures. (2 pts)

a. _____

b. _____

c. _____

d. _____

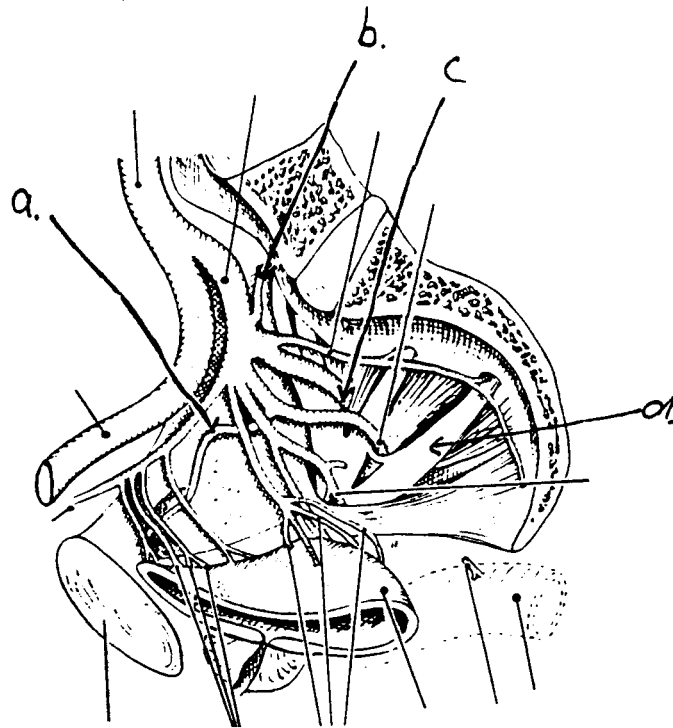


Figure 3. 19. Internal iliac artery and its branches in the male pelvis.

Part II. Indicate your understanding of the following: (15 pts)

a. Meckel's Diverticulum (3 pts)

This is the remnants of the ~~intestine~~ ^{vitelline duct}. ~~intestine~~ ^{intestine} does not disappear and this allows communication to the external of the body through the umbilicus. Thus, material can exit body through umbilicus.

b. Boundaries of the Epiploic Foramen of Winslow (4 pts)

Anteriorly it is bound by the ~~caudate~~ ^{caudate} posterior surface of the

Sup. → caudate lobe of the liver.

Inferiorly it is bound by the duodenum.

Posteriorly it is bound by the inferior vena cava.

It communicates to the right with the great sac ~~and the~~ allowing contact between lesser & greater sac. ~~which is the foramen~~

c. Referred pain (3 pts)

Referred pain refers to the sensation of pain from a specific organ ~~in~~ in a different part of the body due to the pathways of the nerve to that organ. Thus, pain to be felt in a different region.

d. Helicine arteries (3 pts)

Helicine arteries are arteries in the erectile tissue of both male and female. They are unique in the sense that they can dilate and then lead to erection of penis, clitoris ~~etc~~ (due to vasodilation). 52-4

e. Ductus venosus (2 pts)

this is a vessels in the fetus that allows the blood in the umbilical vein to bypass the liver. ~~etc~~
The blood is then diverted to the ~~etc~~ hepatic veins and from them to the inferior vena cava which consequently leads to the right atrium. ~~etc~~

~~what it is~~

Part III. Circle the correct answer. All, none, or some may apply. (16 pts)

1. In regard to the pelvic nerves and vessels:
 - a. The lumbar splanchnic nerves are responsible for contraction of the detrusor muscle.
 - b. The external anal sphincter muscles are innervated by the pelvic and lumbar splanchnics.
 - c. The pudendal nerve is the somatic nerve of the perineum.
 - d. The bulbospongiosus muscle depends on the pelvic splanchnic nerves for contraction.
 - e. The sympathetic trunk ends at the level of L3.

2. With respect to the fascia in the abdomen, pelvis, and perineum:
 - a. The arcus tendineus is a thickening of the fascia of the obturator externus ^{int.} muscle
 - b. Buck's fascia is located deep to the erectile tissue of the corpora spongiosum
 - c. The transversalis fascia in the abdomen is the parietal pelvic fascia in the pelvis
 - d. The perivisceral fascia is a condensation of the extraperitoneal fascia (visceral pelvic fascia) around the pelvic organs

3. Which of the following statement(s) is(are) true:
 - a. Carcinoma below the pectinate line involves stratified squamous epithelium
 - b. The iliac fossa in the female is shallower than in the male
 - c. The ischial spine is usually everted in the female pelvis
 - d. Anal valves are vertical columns in the anal canal that contain veins

4. With regard to the small intestine:

- a. Vasa recta in the ileum are shorter than that in the jejunum
- b. The root of the mesentery crosses the 1st part of the duodenum
- c. The ligament of Treitz (suspensory ligament) suspends the 4th part of the duodenum (duodenojejunal junction)
- d. There are no plicae circulares (circular folds) in the first part of the duodenum
- e. The third (inferior) portion of the duodenum crosses the lower part of the third lumbar vertebra

5. With concern to the anatomy of the gastrointestinal tract:

a. The inferior mesenteric artery is closely associated with the uncinete process of the pancreas

b. The fundus of the stomach is supplied by the short gastric vessels

c. In portal hypertension, one may see dilation of the esophageal arteries

d. The portal vein drains directly into the right and left hepatic veins in order to enter the liver

e. The lesser curvature of the stomach is supplied by the right and left gastroepiploic arteries

6. With regard to the development of the gastrointestinal tract:

a. The stomach undergoes a 270 degree counterclockwise rotation so that the right side is located posterior and the left side is located anterior

b. The gastrohepatic ligament is derived from the ventral mesentery

c. There is a 90 degree counterclockwise rotation of the gastrointestinal tract during embryonic week 5

d. The phrenicocolic ligament is derived from the ventral mesentery

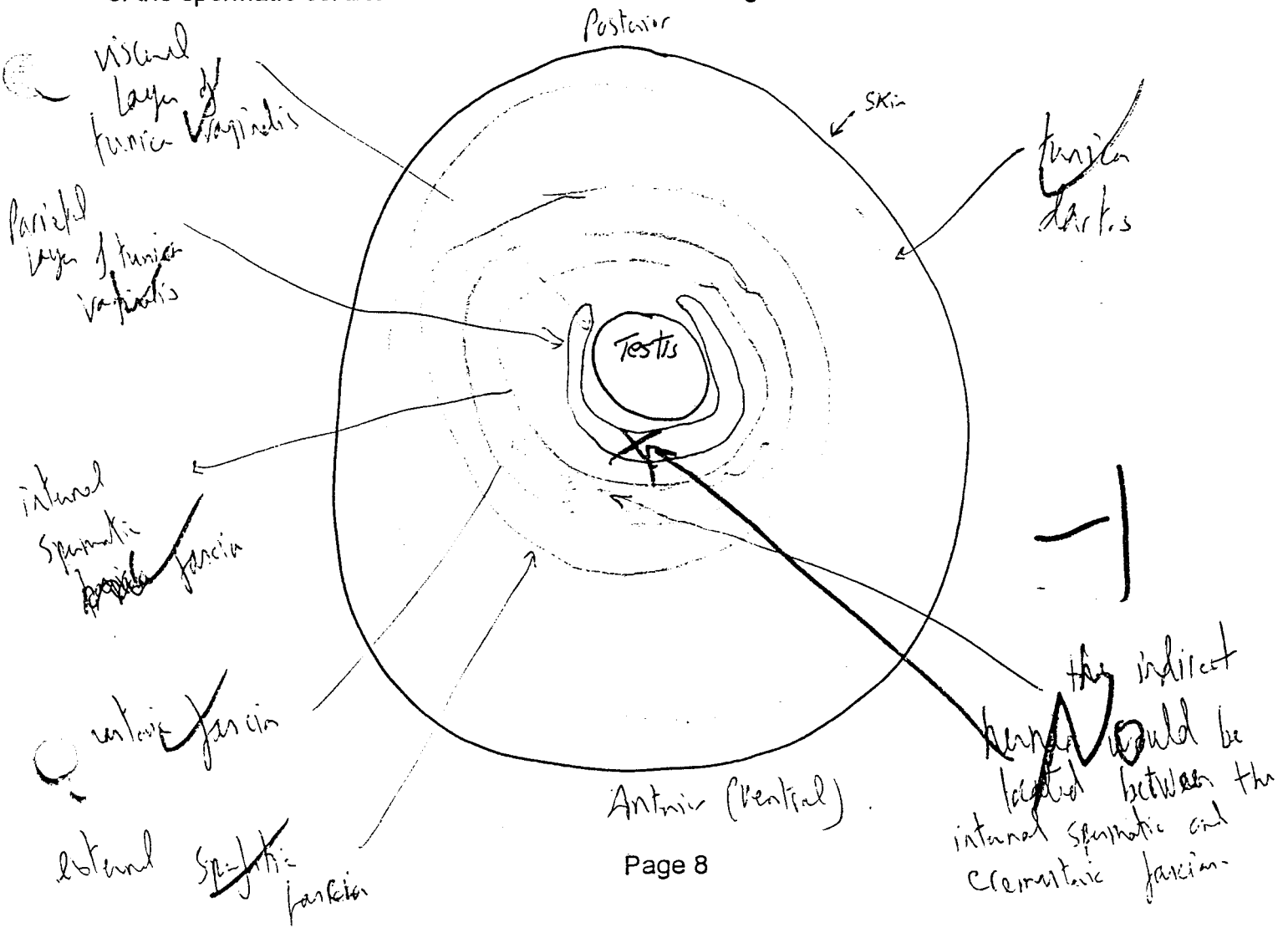
7. With respect to the abdominal contents:

- a. The splenic artery reaches the hilum of the spleen by the lienorenal ligament
- b. The proper hepatic artery is located in the hepatoduodenal ligament
- c. Distinctive lymphoid follicles (Peyer's patches) are located in ileum
- d. The accessory pancreatic duct is located inferior to the chief pancreatic duct
- e. The common bile duct joins with the cystic duct to form the the common hepatic ducts which drain into the 2nd part of the duodenum

3

Part IV. Answer in the space provided. (4 pts)

A 2-year old boy presents at the emergency room with a herniated mass that has descended into the scrotum. Using the diagram below, indicate your understanding of where the mass of an indirect inguinal hernia is located with relation to the testis and the coverings of the spermatic cord/testis in this cross-section through the scrotum.



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, ischiorectal 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).