

STRUCTURAL BASIS OF MEDICAL PRACTICE
EXAMINATION 3

September 25, 2003

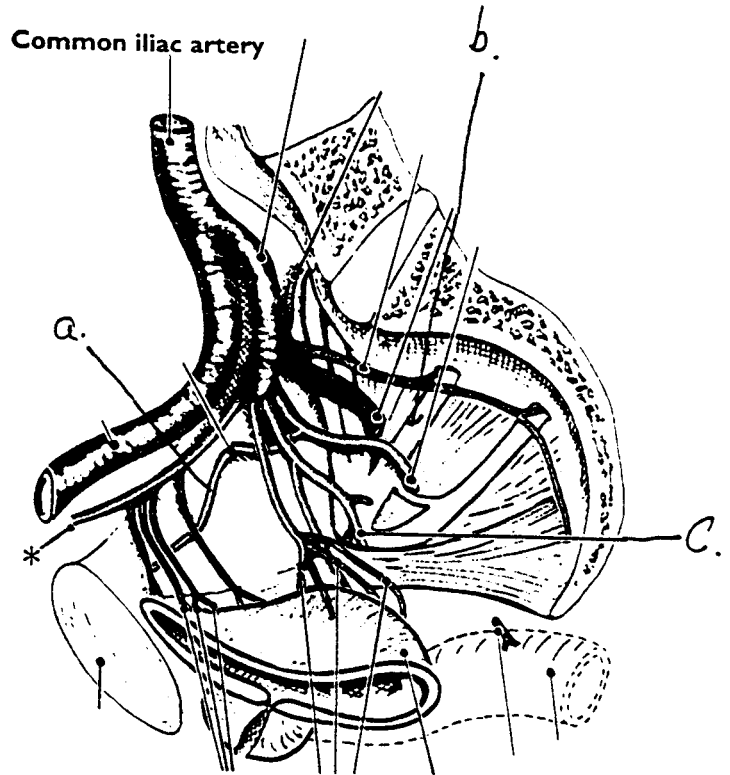
PART I. Answer in the space provided. (5 pts)

1. Identify the structures. (1.5 pts)

a. _____

b. _____

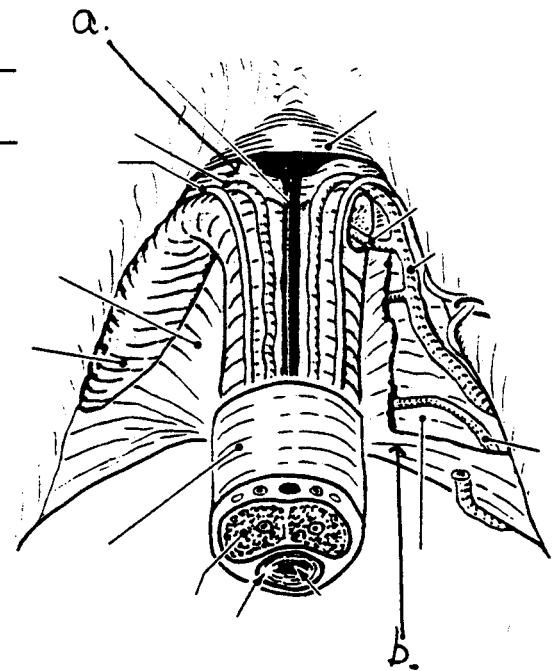
c. _____



2. Identify the structures. (1 pt)

a. _____

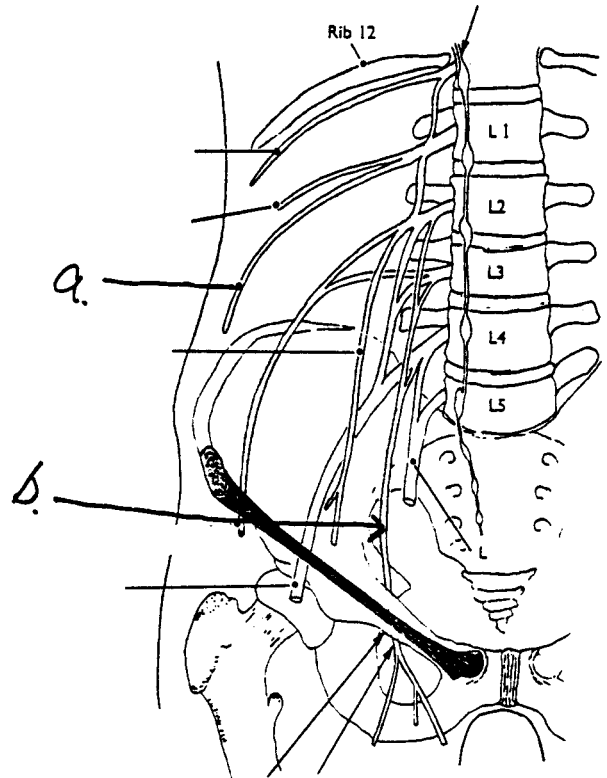
b. _____



3. Identify the structures. (1 pt)

a. _____

b. _____

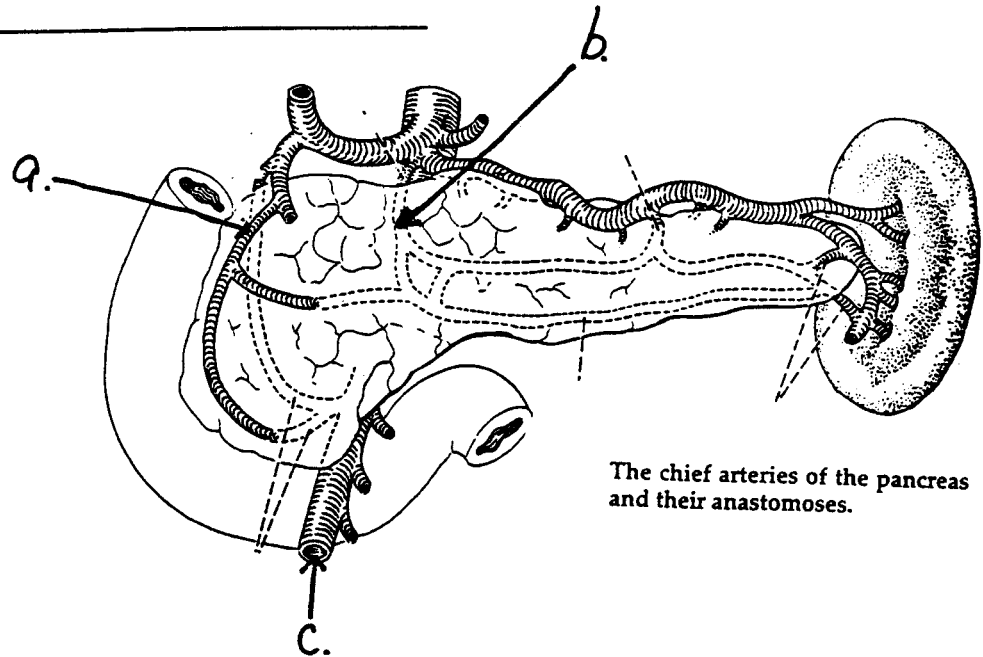


4. Identify the structures. (1.5 pts)

a. _____

b. _____

c. _____



Part II. Circle the correct answer. All, none, or some may apply. (28 pts)

1. With regard to the abdominal wall:
 - a. The suspensory ligament is a condensation of the deep (investing) fascia.
 - b. The external oblique muscle arises, in part, from the lateral two-thirds of the inguinal ligament.
 - c. The transversus abdominis muscle arises, in part from the lateral one-third of the inguinal ligament.
 - d. Tendinous insertions extend from the rectus abdominis muscle to the anterior rectus sheath.
 - e. The internal oblique muscle is covered on its deep aspect by the transversalis fascia.
 - f. Intercostal nerves 6-12 continue contribute to part of the innervation of the anterior abdominal wall musculature.

2. With respect to the inguinal region:
 - a. A direct inguinal hernia that descends into the scrotum will be located in the testicular coelom and surrounded by the tunica vaginalis.
 - b. The genital branch of the genitofemoral nerve innervates the cremaster muscle.
 - c. Extraperitoneal connective tissue surrounds the spermatic cord.
 - d. The parietal layer of the tunica vaginalis is also termed the tunica albuginea.
 - e. The posterior scrotum is innervated by posterior scrotal nerves that arise from the perineal nerve, a branch of the pudendal nerve.
 - f. The vas deferens contains smooth muscle innervated by somatic nerves.
 - g. Venous drainage of the right testis is drained into the pampiniform plexus which forms the testicular vein that drains into the inferior vena cava.
 - h. A direct inguinal hernia lies medial to the median umbilical ligament.
 - i. Indirect inguinal hernias protrude superior and medial to the pubic tubercle.
 - j. The deep inguinal ring is the site of a prolongation of the transversalis fascia into the inguinal canal.

3. With regard to lymphatic drainage of the abdomen, pelvis, and perineum:
 - a. Cancer of the head of the pancreas may involve the celiac, superior mesenteric, and upper lumbar lymph nodes.
 - b. The intestinal lymph trunk terminates in the cisterna chyli.
 - c. The lumbar lymph nodes receive drainage from the pelvic viscera.
 - d. The right colic flexure has dual lymphatic drainage: along the middle colic and left colic arteries.
 - e. The lymphatic drainage of the rectum goes to the superior rectal lymphatic vessels and then to the superior mesenteric nodes.
 - f. The lesser curvature of the stomach has lymphatic drainage to the left and right gastric nodes

4. With respect to the abdomen:
 - a. The head of the pancreas, as well as the uncinata process of the pancreas, are intraperitoneal structures.
 - b. Vasa recta of the ileum are shorter than those of the jejunum.
 - c. Haustra are found on the large, but not the small, intestine.
 - d. The short gastric arteries travel through the lienorenal ligament.
 - e. The proper hepatic artery is located in the hepatogastric ligament of the lesser omentum.
 - f. According to internal morphology (e.g., vasculature), the quadrate lobe and part of the caudate lobe belong to the left lobe of the liver.
 - g. The 3rd part of the duodenum courses horizontally at the level of L3.
 - h. The testicular arteries arise inferior to the renal arteries.
 - i. In the 5th embryonic week, the gastrointestinal tract herniates into the umbilicus and undergoes a 90 degree clockwise rotation.
 - j. The dorsal surface of the stomach becomes the greater curvature as a result of the clockwise rotation occurring during development.

- k. In portal hypertension, blood flow between the portal and inferior vena may occur at the left gastric vein and esophageal vein, resulting in esophageal varicosities.
5. With regard to the kidneys:
- The renal fascia is derived from the transversalis fascia.
 - The renal pyramids are extensions of the cortex into the medulla of the kidney.
 - The uvula is the location of the termination of the ureters into the trigone of the bladder.
 - The left renal artery lies posterior to the left renal vein.
 - The renal sinus contains perirenal fat.
 - In general, the kidneys extend from T12 to L3, although the right kidney is somewhat lower than the left kidney.
6. With respect to the thoracic diaphragm:
- The left crus of the diaphragm contributes to the formation of the esophageal hiatus.
 - The thoracic duct in the abdomen enters the thorax at the level of T12.
 - The medial lumbocostal arch (ligament) is formed by the juncture of the right and left crura.
 - The vagal trunks pass from thorax to the abdomen through the esophageal hiatus.
 - A weakness in the diaphragm superior to the lateral lumbocostal arch (ligament) is termed the lumbocostal trigone.
7. In regard to the nervous system of the abdomen, pelvis, and perineum:
- The detrusor muscle of the bladder is skeletal muscle and the trigone muscle of the bladder is smooth muscle.
 - Transection of the spinal cord above S2-4 allows for an "automatic cord bladder".
 - The levator ani is skeletal muscle innervated by the autonomic nervous system.
 - During defecation, the "puborectal sling" is relaxed.

- e. "Nervi erigentes" refers to the pelvic splanchnic nerves.
 - f. The pelvic splanchnic nerves are pre-ganglionic nerve fibers.
 - g. The lumbar splanchnic nerves are post-ganglionic nerve fibers.
8. With respect to fascial planes in the abdomen, pelvis, and perineum:
- a. Parietal pelvic fascia forms the periprostatic fascia.
 - b. The Cardinal ligaments are derived from the visceral pelvic fascia.
 - c. The superior fascia of the pelvic diaphragm is a condensation of the visceral pelvic fascia.
 - d. The retropubic space contains visceral pelvic fascia.
 - e. The transversalis fascia in the abdomen is the parietal pelvic fascia of the pelvis.

Part III. Indicate your understanding of the following. Guidance for the answers is included. Answer in the space provided. (31 pts)

1. Porta hepatis. (define, location, contents) (4 pts).

2. Vasculature (arteries, veins) of the suprarenal gland. (4 pts)

3. Ligament of Trietz (Suspensory ligament). (location, origin, insertion, function) (4 pts)

4. Arcus tendineus. (location, attachments, significance) (4 pts)

5. Perineal body. (location, associations, significance) (5 pts)

6. Right paracolic gutter. (definition, location, significance) (3 pts)

7. Epiploic foramen (of Winslow). (boundaries, significance) (3 pts)

8. Arcuate line of abdominal wall. (location, definition, significance) (4 pts)

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

1. A 35-yr old male is admitted to the emergency room after a penetrating wound to the abdomen that involves the transverse colon. Because of the trauma, a colostomy (establishment of a cutaneous opening into the colon) is planned. The attending physician asks you to **present the anatomy of the transverse colon; include structure, relationships, innervation, vasculature, and lymphatics.** (12 pts).

2. A 55-yr old woman presents to your clinic with advanced carcinoma of the cervix of the uterus. A hysterectomy (excision of the uterus) is planned. You are requested to **present a comprehensive review of the uterus, uterine tubes, and ovary; include structure, relationships, vasculature, innervation, lymphatic drainage, and function.** (12 pts)

3. A 21-yr old male is rushed to the emergency room after an automobile accident. Trauma to the perineum ruptures the membranous urethra and inferior fascia of the urogenital diaphragm, and extravasation of urine occurs. **Define the location of urine as a result of this injury, and the boundaries of Scarpa's fascia and its derivatives with respect to the contamination of the urine. Specify the fascial layer(s) associated with the accumulation of urine. Will urine also be found in the ischioanal fossa - explain your answer. (12 pts)**