EXAM NUMBER_____

Graduate Anatomy 503

EXAMINATION 3

October 16, 2020

PART I. Answer in the space provided. (16 pts)

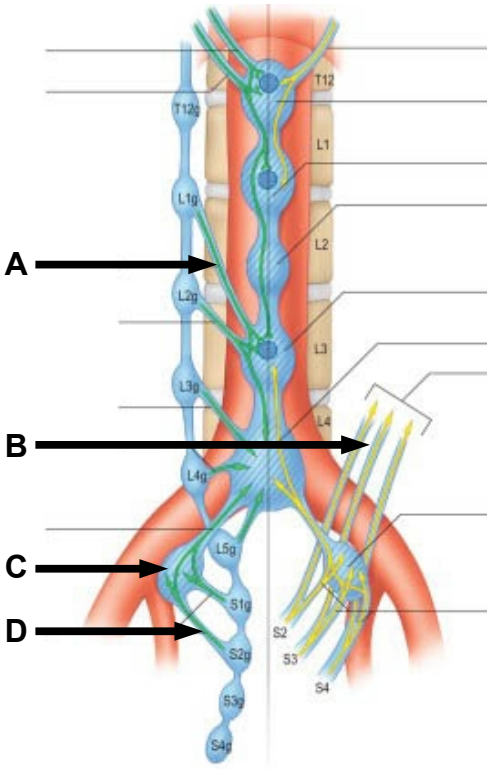
1. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



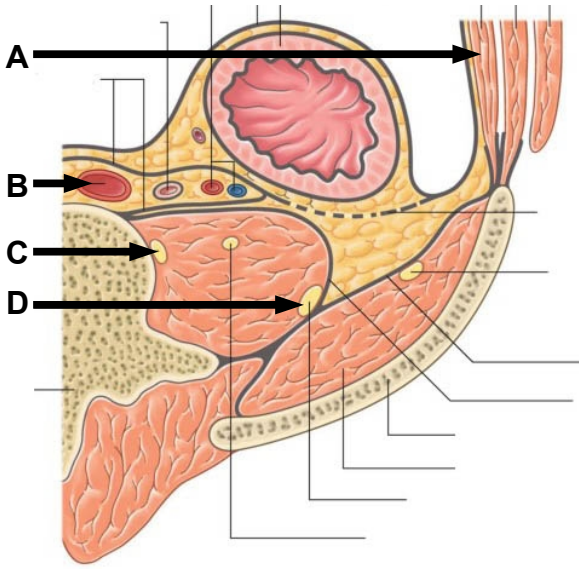
2. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



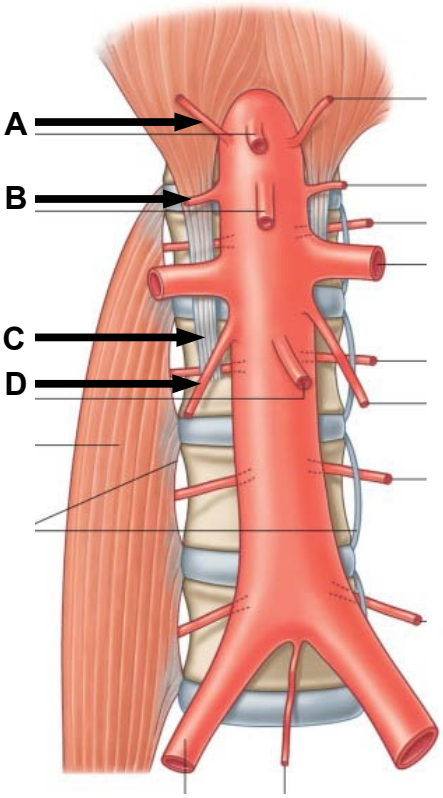
3. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



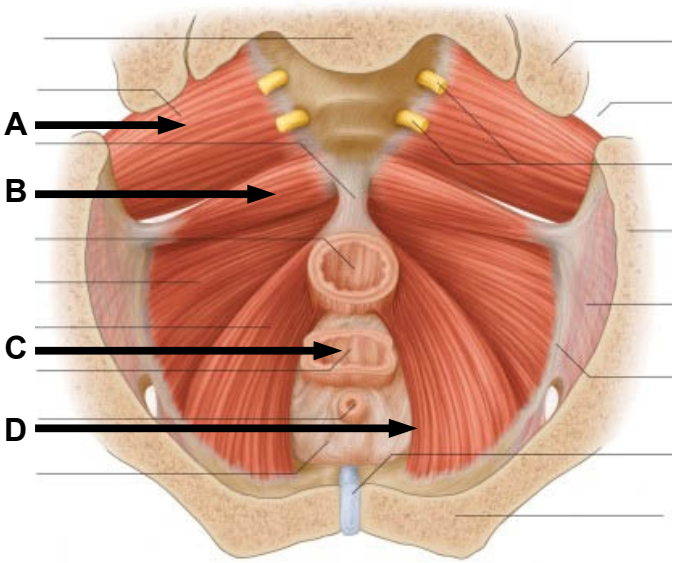
4. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



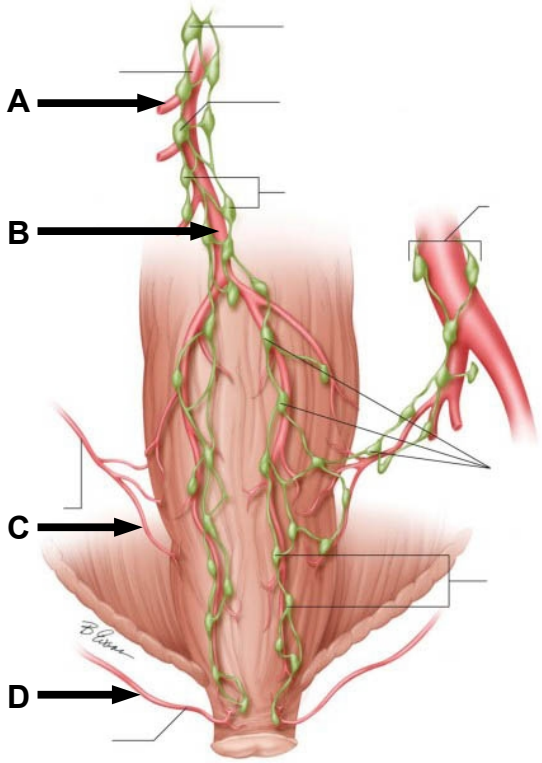
5. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



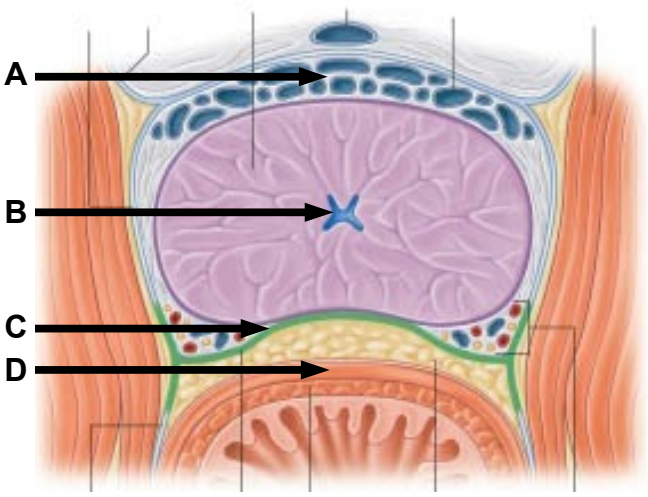
6. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



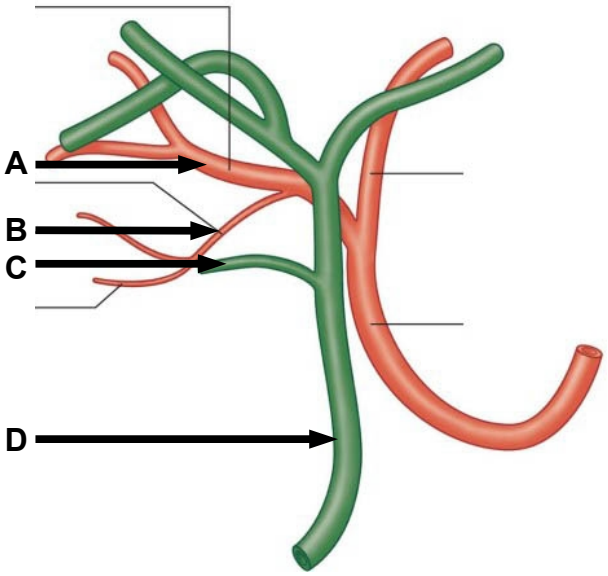
7. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



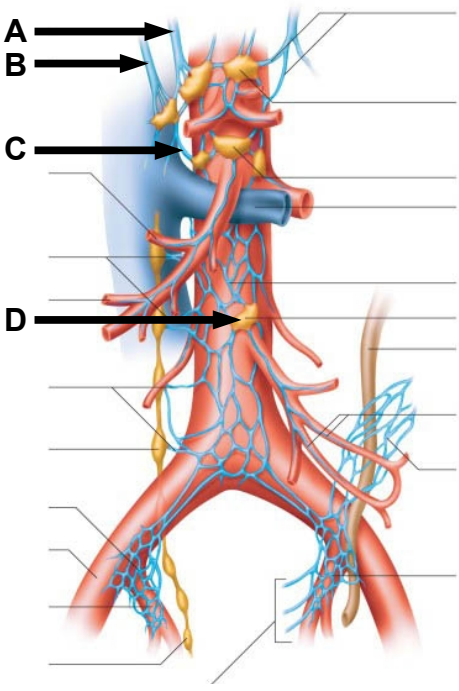
8. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



Part II. Circle the correct answer. All, none, or some may apply. (18 pts)

1. With regard to anterior abdominal wall and inguinal canal:
    a) A direct inguinal hernia may descend through the deep ring.
    b) The umbilicus is at the L3 vertebral level and the T8 dermatome level.
    c) The transversus abdominis muscle is attached to the lateral 1/3 for the inguinal ligament.
    d) The conjoint tendon receives contributions from the transversus abdominis and the internal oblique aponeurosis.
    e) The superior, middle, and inferior suprarenal veins supply the suprarenal gland.
    f) Metastatic disease from the left colic flexure is expected to spread to the inferior mesenteric lymph nodes.
2. With regard to the abdominopelvic cavity and vasculature:
    a) The inferior mesenteric artery supplies blood to the hindgut and anal canal.
    b) The superior and middle rectal veins anastomose proximal to the pectinate line.
    c) Primary lymphatic drainage from the inferior pole of the ovary is to the superficial inguinal nodes.
    d) Primary lymphatic drainage from the fundus of the stomach is to the celiac nodes.
    e) The superior anterior and posterior pancreaticoduodenal arteries anastomose with the inferior anterior and posterior pancreaticoduodenal arteries at a location along the alimentary canal that marks the transition from foregut to midgut.
    f) Primary lymphatic drainage from the appendix is to the internal iliac nodes.
3. With regard to the liver, duodenum, pancreas, and posterior abdominal structures:
    a) The caudate lobe of the liver provides the posterior boundary of the epiploic foramen.
    b) The inferior vena cava passes through the bare area of the liver and provides the anterior boundary of the epiploic foramen.
    c) The hepatogastric ligament is a visceral ligament attached to a fibrous ligament and contains the right gastric vein.
    d) Blood from the portal system normally passes through the liver before draining into the inferior vena cava by way of the hepatic veins.
    e) The ligament venosum extends from the portal vein to the left hepatic vein.
    f) The common bile duct is joined by the accessory pancreatic duct to form the ampulla of Vater.
4. With regard to the pelvic viscera and perineum:
    a) The retropubic space provides surgical access to the pubovesical ligament without the need to enter the peritoneal cavity.

b) The ampulla of the vas deferens lies posterior to the prostate and lateral to the seminal vesicle.

c) The presacral space is a subperitoneal space posterior to the rectum and anterior to the sacrum.

d) The rectouterine pouch is unique to the female.

e) Perivisceral fascia is thickened at the posterior wall of the rectum and, at this location, is known as the fascia of Denonvilliers.

f) Lymphatic channels passing through the inguinal canal communicate between uterine nodes and superficial inguinal nodes.

5. With regard to the pelvic diaphragm and anal region:

a) The ischiococcygeus (coccygeus) takes origin from the internal surface of the sacrospinous ligament.

b) The puborectalis muscle is tethered to the anococcygeal raphe.

c) Pelvic visceral fascia condenses to form perivaginal fascia.

d) Internal hemorrhoids, more so than external hemorrhoids, may develop during portal hypertension.

e) The arcus tendineus is a specialization of the obturator internus fascia that provides a site of attachment for the iliococcygeus muscle.

f) Contraction of the ischiococcygeus raises the pelvic floor.

6. With regard to the pelvic nerves and vessels:

a) Injury to the spinal cord superior to the S2-4 cord levels preserves the spinal reflexes of micturition.

b) The cavernous nerves are predominantly derived from sacral splanchnic nerves.

c) Sectioning of the hypogastric nerves to disrupt visceral afferent fibers removes all sympathetic supply to the uterus.

d) Disruption of the pelvic splanchnic nerves is expected to cause impotence.

e) The falciform edge is along the medial margin of the ischial tuberosity and contributes to formation of the pudendal canal.

f) The parasympathetic supply to the descending colon follows a periarterial plexus.

Part III. Indicate your understanding of the following. (30 pts)

1. Bleeding of the upper gastrointestinal tract may manifest as frank blood in vomit.
   Discuss the ligament of Treitz. (6 pts)

2. Cirrhosis of the liver causes portal hypertension. **Discuss the anatomical basis for esophageal varices. (6 pts)**

3. **Discuss the flow of sperm during ejaculation, begin at the testis and end at the urethral orifice. (6 pts)**

4. **Discuss the relationships of the deep dorsal vein of the penis and the deep dorsal vein of the clitoris as these veins leaves the superficial pouch to enter the pelvic cavity. (6 pts)**

5. Define the structure and relationships of the left lateral arcuate ligament. (6 pts)

Part IV. Answer in the space provided. (36 pts)

1. A hysterosalpingogram determines patency of the uterine ostia and uterine tubes. Radiographic contrast is injected into the uterine cavity through the vagina and cervix. If the uterine tubes are patent, dye appears in the abdominal cavity. Blockages are then ruled out as the cause of a patient's infertility. **Indicate your understanding of the uterus, uterine tubes, and ovary as to structure, orientation, relationships (anterior, posterior, superior, inferior, medial, lateral), ligamentous support, peritoneal associations, innervation (preganglionic, postganglionic, and visceral afferent pathways), vasculature, and lymphatic drainage. Cite an example of clinical relevance. (12 pts)**

2. Hirschsprung's disease is caused by a lack of parasympathetic innervation to a segment of the colon. **Review the anatomy of left colic flexure with respect to structure, relationships, innervation (sensory and motor), vasculature, lymphatic drainage, support (visceral and fibrous). Cite an example of clinical relevance. (12 pts)**

3. Cauda equina syndrome results from perturbation to the sacral spinal nerves. Disruption of the S2-4 spinal nerves causes fecal incontinence. **Review the anatomy of the levator ani and its contribution to fecal and urinary continence. Include structure, innervation, vasculature, lymphatic drainage, and relationships. Cite an example of clinical relevance. (12 pts)**