Fetal Pig Dissection

The fetal pig that you will dissect has been injected with a colored latex (rubber) compound. The arteries have been filled with red latex and the veins with blue. An incision was made on the side of the neck to enable the injections.

External Structures

Obtain a fetal pig and identify the structures listed in the first photograph.

Use your pig and also a pig of the opposite sex to identify the. The word "urogenital" refers to an opening that serves both the urinary (excretory) and the reproductive systems.

1. Both sexes: **Nipples, Umbilical Cord**
2. Female: **Urogenital Papilla, Anus**
3. Male: **Urogenital Opening, Penis**

Preparation and Initial Cuts

Tie one front leg of the animal with a string that passes underneath the dissecting pan to the other leg. Repeat this with the back leg.

Insert one blade of scissors through the body wall on one side of the umbilical chord and cut posteriorly to the base of the. Continue cutting from the anterior end of this cut so that it resembles an upside-down U. Your finished cut will be anterior to the navel and along each side of the navel. The flap of body wall that contains the navel can be folded posteriorly to reveal the internal organs of the abdomen.

Extend a single cut along the midline of the ventral surface of the animal to about 2 cm. from the chin. Cut completely through the body wall in the abdominal area but keep the cut shallow in the neck region.

The diaphragm separates the abdominal cavity from the heart and lungs. Cut the body wall on each side of the. This will enable you to spread the body wall open without cutting the diaphragm.

Mouth and Neck Region

Use a scalpel to cut the sides of the mouth so that the bottom jaw can be opened for easier viewing (see the first photograph below). You will need to cut through the musculature and the joint that holds the lower jaw to the skull. Open the jaw wide enough so that the

glottis and ***epiglottis*** are exposed. The epiglottis projects up through the soft palate into a region called the ***nasopharynx***. The ***hard palate*** and ***soft palate*** separate the nasal and oral cavities. When breathing, air passes through the nasal passages to the ***pharynx***. The pharynx is the space in the posterior portion of the mouth that both food and air pass through. From the pharynx, it passes through the glottis to the ***trachea***.

Carefully, peel the skin away from the incision in the neck region using a blunt probe (a needle or the point of scissors will do if a blunt probe is not available). Use the probe to peel away muscle tissue until the thymus gland on each side of the trachea is exposed.

Use a probe to separate the two lobes of the thymus gland and to further separate the musculature over the trachea.. The thyroid gland is darker and lies between the posterior ends of the two lobes of the thymus gland.

Continue separating the tissue with a probe until the ***trachea*** and ***esophagus*** are exposed. The esophagus is dorsal to the trachea. The large hard structure attached to the trachea is the ***larynx***. It contains the vocal chords.

Respiratory System

You have already seen the nasopharynx, hard palate, soft palate, epiglottis, glottis, trachea, and larynx. Follow the trachea to where it branches into two ***bronchi*** and observe that each bronchus leads to a ***lung.*** The left lung contains three lobes and the right lung contains four. Each lung is located in a body cavity called a ***pleural cavity***. Observe how the ***diaphragm*** attaches to the body wall and separates the pleural cavities and ***pericardial cavity*** (contains the heart) from the ***abdominal cavity***. Contraction of the diaphragm forces air into the lungs.

Notice that the diaphragm separates the abdominal cavity from the pleural and pericardial cavities.

Digestive System

You have already seen how the ***esophagus*** leads from the ***pharynx*** through the neck region. Using a probe, trace follow the esophagus to the ***stomach***. Identify the ***small intestine*** and ***large intestine*** (***colon***). Find the posterior part of the large intestine called the ***rectum*** and observe that it leads to the ***anus***. Locate the ***cecum***, a blind pouch where the small intestine joins the large intestine.

Identify the ***liver***. Lift the right lobe and find the ***gallbladder***. This structure stores bile produced by the liver. Find the ***bile duct*** that leads to the small intestine. The ***pancreas*** is located dorsal and posterior to the stomach. It extends along the length of the stomach from the left side of the body (your right) to the point where the stomach joins the small intestine. Lift the stomach and identify this light-colored organ.

The ***spleen*** is an elongate, flattened, brownish organ that extends along the posterior part of the stomach ventral to (above) the pancreas.

Identify the following structures:

1. **Urinary Bladder, Small Intestine, Large Intestine, Spleen, Liver, Diaphragm, Heart, Lungs**
2. **Gallbladder, Bile Duct, Stomach, Pancreas**
   The liver has been lifted to show the gallbladder attached to the under surface
3. **Liver, Spleen, Pancreas**
4. **Pancreas**
   The stomach has been lifted to reveal the pancreas.
5. **Small Intestine, Large Intestine, Spleen, Liver**
6. **Intestine (uncoiled)**
7. **Intestine (uncoiled)**

Blood Vessels and Abdominal Organs

1. **Heart, Pulmonary Trunk, Pulmonary Artery, Aortic Arch, Ductus Arteriosus, Aorta, Brachiocephalic Artery, Left Subclavian Artery, Coronary arteries**
   Blood passes from the left ventricle through the aortic arch and aorta to the body. The first branch of the aorta is the brachiocephalic artery. The second branch is the left subclavian artery which goes to the left leg. After the pig is born, blood leaving the right ventricle passes through the pulmonary trunk and artery and then lungs. Before birth, it passes from the pulmonary trunk through the ductus arteriosus to the aorta. This bypasses the lungs, which are not used before birth.
2. **Same as above (different pig)**
3. **Trachea, Left Common Carotid Artery, Right Subclavian Artery, Left Subclavian Artery, Left Atrium, Right Ventricle, Right Atrium, Aortic Arch, Brachiocephalic Artery, Right Common Carotid Artery, Larynx**

4. **Right Atrium, Right Ventricle, Posterior Vena Cava**
5. **Heart, Lung, Liver, Posterior Vena Cava**
6. **Aorta, External Iliac Artery, Umbilical Artery, Urinary Bladder**
7. **Renal Artery.** The renal artery passes blood from the aorta to the kidney.
8. **Renal Vein**, ureter, urinary bladder. The renal vein returns blood from the kidney to the posterior vena cava.
9. **Right Internal Jugular Vein, Right External Jugular Vein, Right Subclavian Vein, Anterior Vena Cava, Posterior Vena Cava**

Excretory System

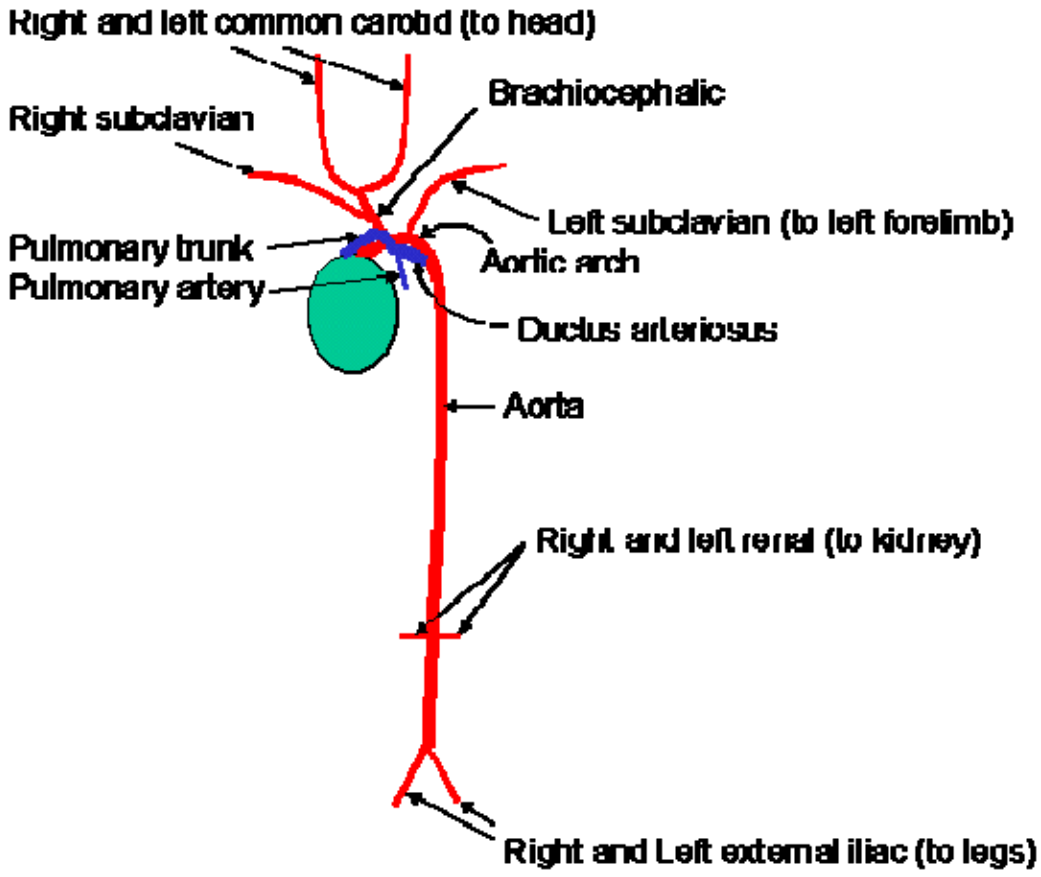
1. **Kidney, Ureter, Urinary Bladder.** Urine passes from the kidney through the ureter to the urinary bladder.
2. **Uterine Horn, Ovary, Colon**
   The small and large intestines have been moved to the side (up in this photograph).
3. **Urinary Bladder, Kidney, Umbilical Artery**
4. **Ureter, Kidney, Colon**
5. **Renal Vein, Renal Artery, Kidney, Ureter**

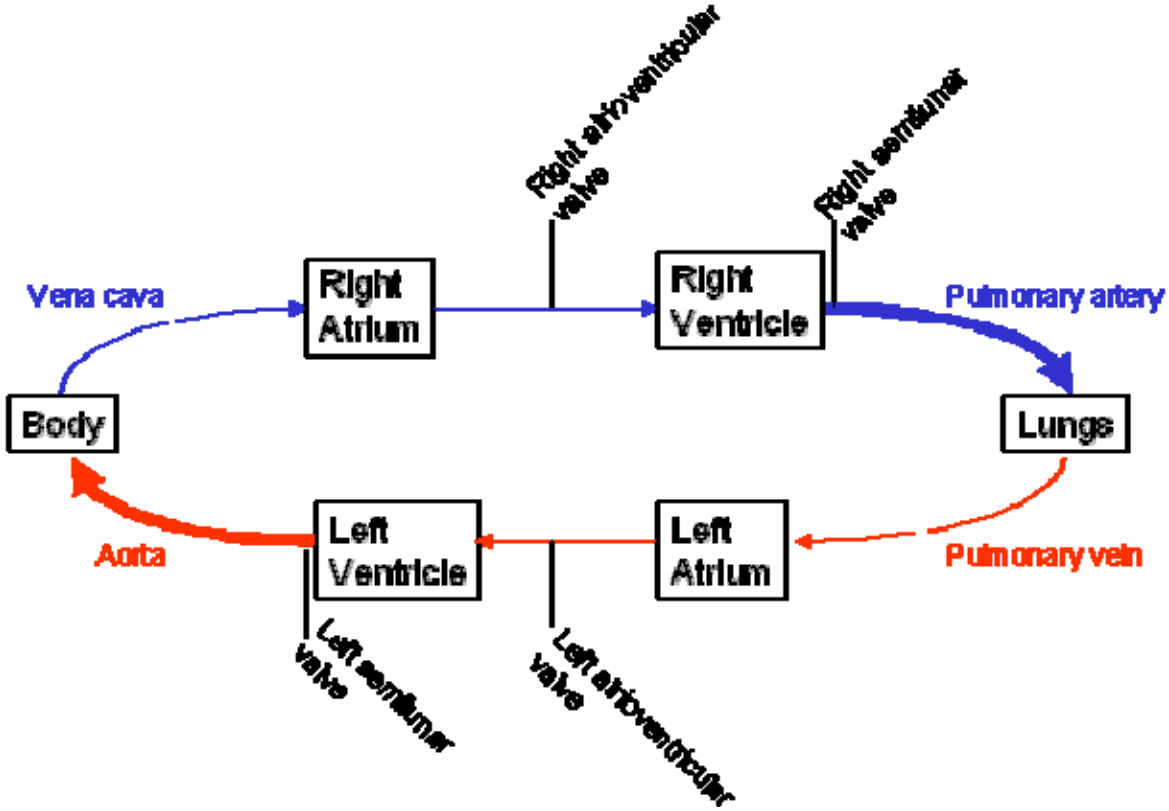
Reproductive System (Female)

1. **Ovaries, Horn of Uterus, Body of Uterus**
   The anterior portion of the uterus is divided to form the right and left horn.
2. **Ovaries, Horn of Uterus, Body of Uterus, Urinary Bladder**
3. **Body of Uterus, Urethra, Vagina, Urogenital Sinus, Colon, Urinary Bladder**
   The urethra (carries urine from the bladder) merges with the vagina to form a common duct called the urogenital sinus.

Reproductive System (Male)

1. **Penis, Testes, Epididymis**
2. **Bulbourethral Gland, Seminal Vesicles, Urinary Bladder**
   The seminal vesicles can be seen at the base (posterior end) of the urinary bladder.


Right and left common carotid (to head)
Brachiocephalic
Right subclavian
Left subclavian (to left forelimb)
Pulmonary trunk
Aortic arch
Pulmonary artery
Ductus arteriosus
Aorta
Right and left renal (to kidney)
Right and Left external iliac (to legs)


Right atrioventricular valve
Right semilunar valve
Vena cava
Right Atrium
Right Ventricle
Pulmonary artery
Body
Lungs
Aorta
Left Ventricle
Left Atrium
Pulmonary vein
Left semilunar valve
Left atrioventricular valve