

Sheep Heart Dissection

Objectives

1. To learn the anatomy of the human heart by studying the structurally similar sheep heart.
2. To understand the function of the heart by studying the structure.
3. To trace the course of the flow of blood within the heart.

Materials

1. Presoaked and rinsed sheep hearts
2. Dissecting kits/tools
3. Dissecting trays
4. 8 inch wooden sticks
5. Plastic/latex gloves

Procedure

1. Form groups of two to four as a dissecting team.
2. Before starting the dissection of the heart, identify, or tentatively identify the following structures.

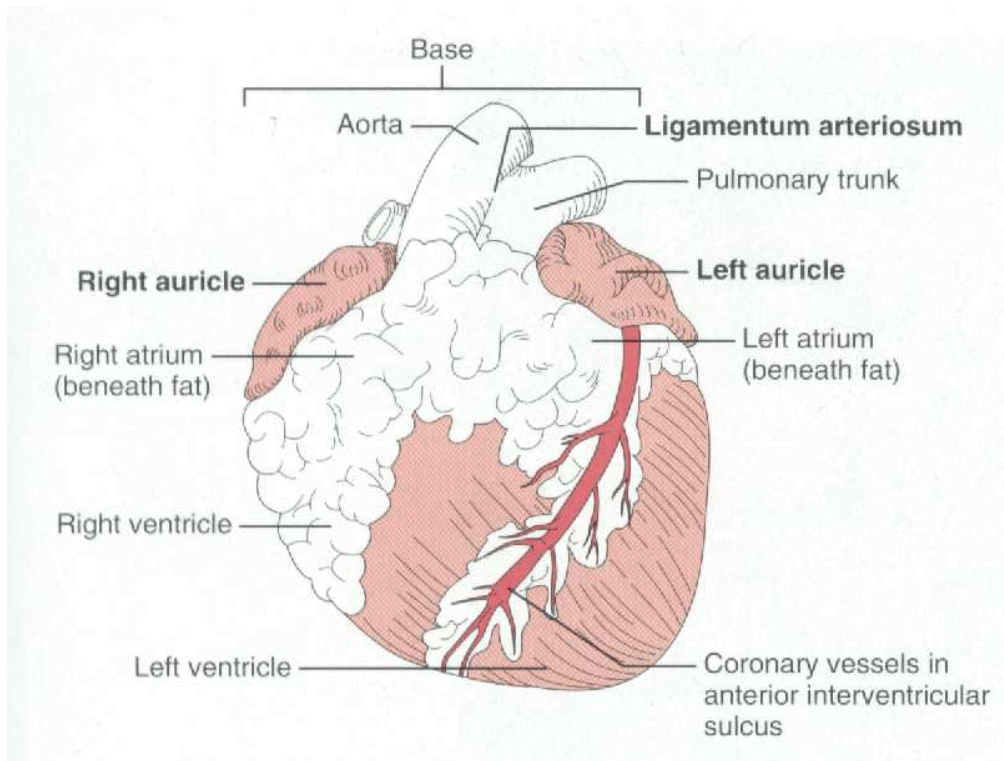
Blood vessels A. Aorta B. Superior vena cava C. Inferior vena cava D. Pulmonary artery E. Right coronary artery F. Left coronary artery G. Circumflex artery H. Coronary veins I. Pulmonary artery.

Chambers A. Right atrium B. Left atrium C. Right ventricle D. Left ventricle

Structures A. Base of heart B. Apex of heart C. Pericardium

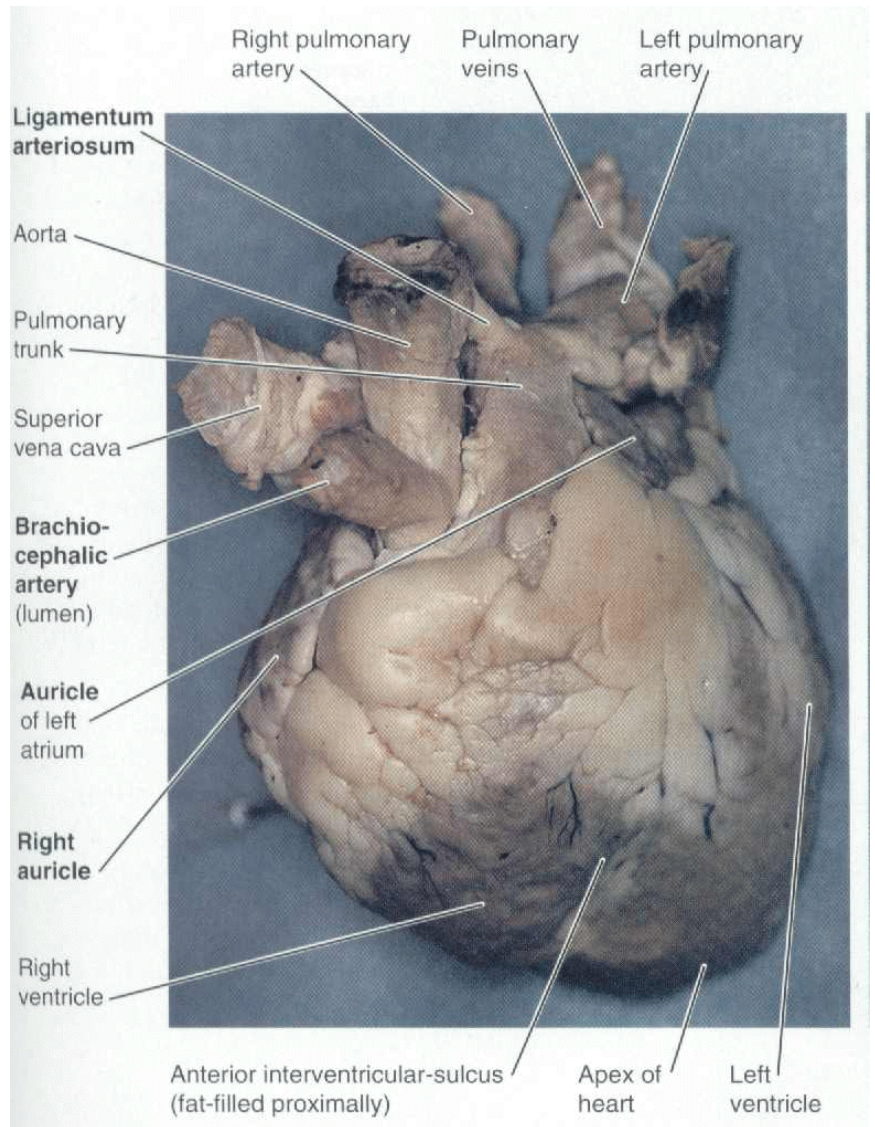
3. Right Heart - Use the scalpel for making incisions and the stick to trace the course of the blood flow within the heart. Locate the superior vena cava and right atrium. Insert the stick into the superior vena cava. Push the stick all the way into the right atrium and continue to feed the stick through the AV valves into the right ventricle.
4. Make an incision with the scalpel from the superior vena cava to the apex of the heart, using the stick as the guideline. This incision exposes the interior of the superior vena cava, the right atrium, the tricuspid valves, and the right atrium.

5. Observations - Notice the difference in the color, structure, and thickness of the walls of the right atrium and the right ventricle. Identify the three cusps and the *chordae tendinae* and papillary muscles. Identify the three layers of the ventricular wall: the thin outer *epicardium*, the very thick middle *myocardium*, and the thin inner *endocardium*.

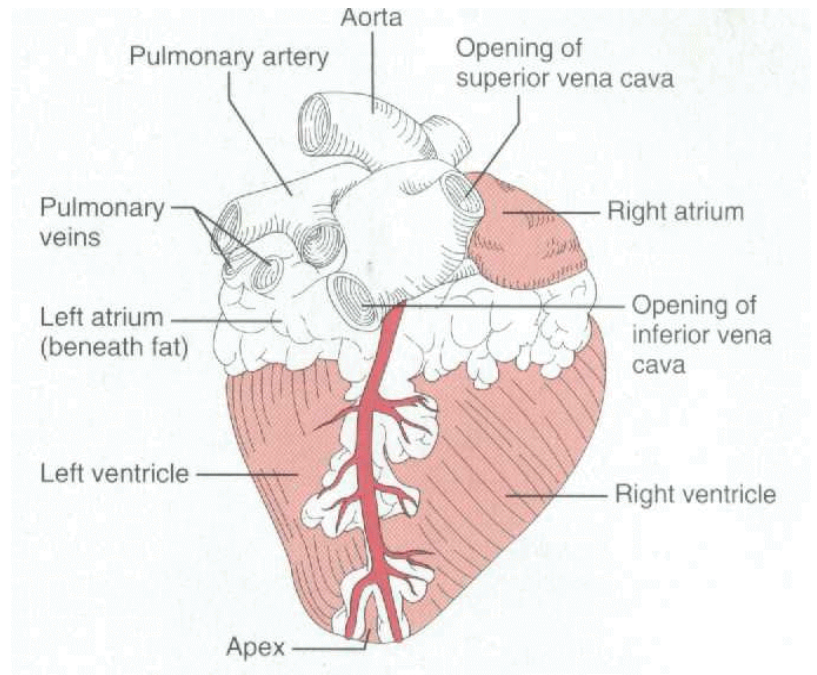


Anterior Heart

6. Pulmonary artery/veins - Locate the opening of the pulmonary artery at the junction of the right atrium and the right ventricle. Insert the stick into the pulmonary artery and push it through so that it comes out of the other end of the pulmonary artery. Cut along the artery with the scalpel, following the underlying stick. Remove the stick to see the **pulmonary semilunar valves** of the pulmonary artery. The pulmonary veins are usually cut too short when they remove the heart from the sheep and it is therefore often difficult to locate them as individual veins.

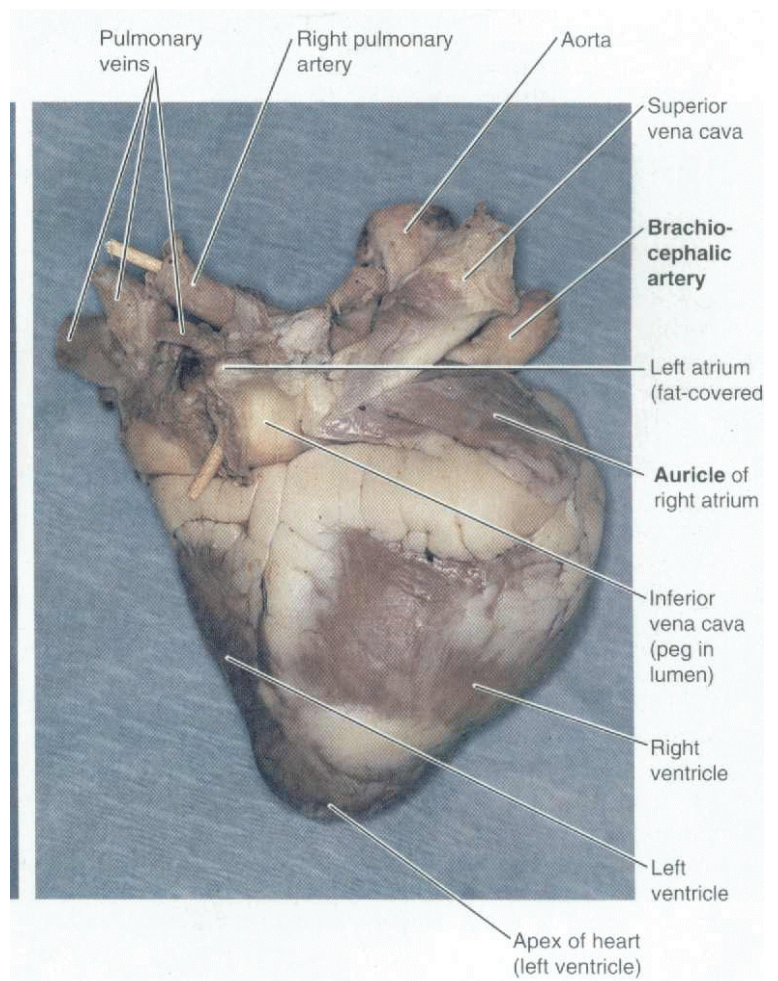


7. Left heart - Insert the stick into the hole of the openings of the pulmonary veins of the left atrium at the back of the heart. Push it through the **bicuspid, mitral, valve** into the left ventricle. Cut along the line of the stick through to the apex of the heart.



Posterior Heart

8. Observations - Notice the difference in the size, location, thickness of the wall of the left ventricle with reference to the right ventricle. Locate the bicuspid valve. The left ventricle is much larger in size, centrally located, and the wall is much thicker (about twice) than that of the right ventricle. Why? Identify the **interventricular septum** that separates the two ventricles. The **Bundle of His** is located in this septum, but it cannot be distinguished from the surrounding tissue. Locate the opening of the aorta at the junction of the atrium and the ventricle. Insert the stick into this opening and push it through so that it comes out at the end. Cut along the aorta following the stick as a guide. Remove the stick and notice of cusps of the **aortic semilunar valve** of the aorta. Notice just above the valve cusps the exits for the left and right coronary arteries.



Heart diagram - Label and color the internal and external heart diagram, matching the structures with their names.

Clean up

Put the dissected heart, and **all associated organic matter**, in the plastic bag of the appropriately labeled container. Place organically contaminated materials, gloves and towels, in the appropriate marked container. Wash the dissecting instruments and tray with soap, wipe them with the paper towels, and put them out to dry. Clean, disinfect, and wipe down your table for the next class. Return instruments to the kits when dry. Thank you for your cooperation.