From the right ventricle, blood is pumped through the **pulmonary semilunar valve** into the pulmonary trunk. Three membranous pockets, each in the shape of a half moon, form this valve. The decrease in pressure in the ventricle as it relaxes, causes the blood, under high pressure in the pulmonary trunk, to backwash into the ventricle. This backwash is prevented by blood filling the pockets of the semilunar valve which now slam shut. Blood is transported to the lungs where gas exchange occurs.

From the lungs, blood returns through the **pulmonary veins** to the left atrium. The two veins from each lung become confluent as they enter the atrium, sometimes giving the appearance of only two openings. Locate the openings of the pulmonary veins on the posterior aspect of the atrium [Figure 8–2]. Often, the pulmonary veins are removed close to the heart and appear only as holes in the left atrium.

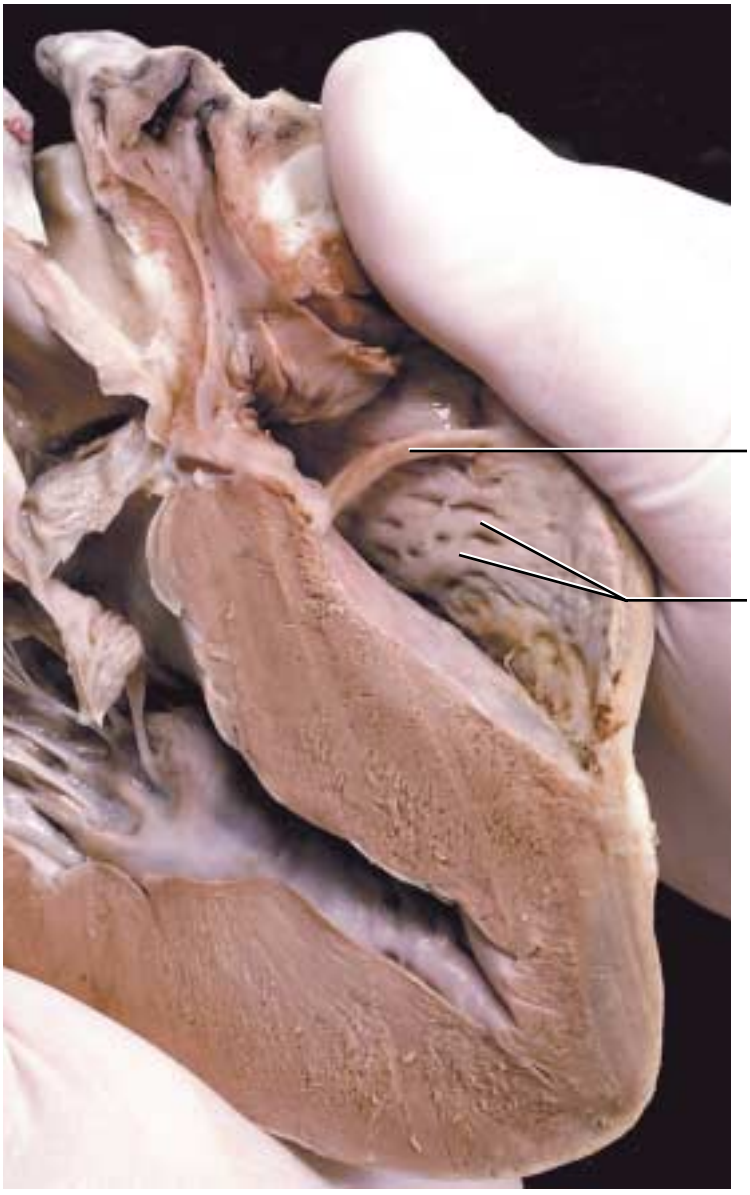

FIGURE 8–5 Right ventricle: moderator band.

The inner appearance of the left atrium is quite similar to the right atrium, with the exception that the musculi pectinati seem to be less extensive. However, they are prominent in the left auricle. As in the right pump, blood flows passively from the left atrium into the left ventricle, in this case, through the two cusps of the **left atrioventricular** or **bicuspid valve**. A **medial** and a **lateral cusp** are attached to those respective walls [Figure 8–6]. In a manner similar to the construction of the tricuspid valve, chordae tendineae extend between the margins of the cusps to papillary muscles protruding from the muscular walls of the ventricle. The final filling of the ventricle is accomplished by contraction of the left atrium.

As the atrium relaxes and the ventricle contracts, the pressure of the engorged ventricle supercedes that of the atrium and blood backwash is again prevented when the cusps of the bicuspid valve slam shut. Contraction of the papillary muscles resulting in a pull on the edges of the cusps prevents eversion of the cusps into the left atrium.

The obviously thicker myocardium of the left ventricle is one of its most distinguishing features. Although it cannot be observed readily, an **interventricular septum** is present between the two ventricles, indicated externally by the interventricular grooves. Trabeculae carneae are again a feature of the inner surface of the chamber. Contraction of the left ventricle forces blood past the **aortic semilunar valve** into the aorta [Figure 8–6]. The morphology of this semilunar valve is identical to the pulmonary semilunar valve. As the ventricle relaxes, the blood pressure in the aorta exceeds that of the ventricle and blood backwashes toward the ventricle, filling the membranous pockets causing them to slam shut.

Continuous pumping of the heart throughout the life of a mammal demands a constant supply of highly oxygenated blood to this hard working muscular organ. This requirement is met by delivery of the most highly oxygenated blood by way of the **left** and **right coronary arteries** that originate immediately above the aortic semilunar valve. Examine the medial and lateral walls of the aorta where you will observe the openings of these two vessels [Figure 8–6]. You may observe a number of small openings that represent coronary blood vessels.

With the exception of the moderator band, the anatomy of the human heart is very similar to the sheep.