Dog heart
Coronary artery cast

- left subclavian a.
- brachiocephalic a.
- right coronary a.
  (swelling of the 3 aortic sinuses)
- septal branch
- aortic bulb
- descending aorta
- aortic arch
- ascending aorta
- left coronary a.
- circumflex branch
- subsinuosal interventricular a.
- paraconal interventricular a.
CORONARY ARTERIES

left subclavian artery
brachiocephalic artery
right coronary artery

in the dog (as in the ruminants also) the right coronary artery is relatively small and only supplies the peripheral wall of the right ventricle and atrium. (In horses, pigs and ourselves, the right coronary artery dominates, supplying the interventricular septum and part of the left ventricle).

aortic bulb

the swelling formed by the three aortic sinuses which assist the function of the aortic valve and from which the coronary arteries arise

descending aorta
aortic arch
ascending aorta
left coronary artery

branching patterns are variable (and unimportant) but those shown here are apparently typical:
circumflex branch
in coronary groove
subsinuosal interventricular branch
left ventricular branches
septal branch
paraconal interventricular branch
Heart muscle is so active it is nourished via one of the richest capillary networks in the body, there being at least one capillary per muscle fibre. (Other highly vascular tissues include the walls of the lung and parts of the central nervous system). The living wall is so permeated by vascular spaces that it may be thought of as a pulsating sponge of blood.

The arteries run most of their course over the surface of the heart where they will not be compressed during systole. Even so, the terminal ramifications are within the myocardium so that flow to the left ventricle occurs mostly during diastole when the myocardium is relaxed (flow during diastole:systole = 4:1); in the right ventricular wall, however, the pressure is never high enough to affect the flow significantly. The coronary arteries arise from the aortic bulb at an angle consistent with the retrograde flow of blood occurring during diastole.

Notice that no anastomoses are visible on this cast. However, anastomoses are present at the large arteriolar level and in fact are numerous in the range 40μ to 350μ diameter. They are, nevertheless, unable to provide an adequate collateral circulation should sudden occlusion (blockage) of the major arteries occur. In this circumstance that part of the heart wall supplied by the artery receives inadequate blood (becomes ischaemic) and usually dies through a process of infarction. During slow (chronic) occlusion, however, these anastomoses may provide a framework for an effective collateral circulation to develop. Coronary infarction and its consequences (heart attacks, angina) are common in ourselves but rare in domestic animals.