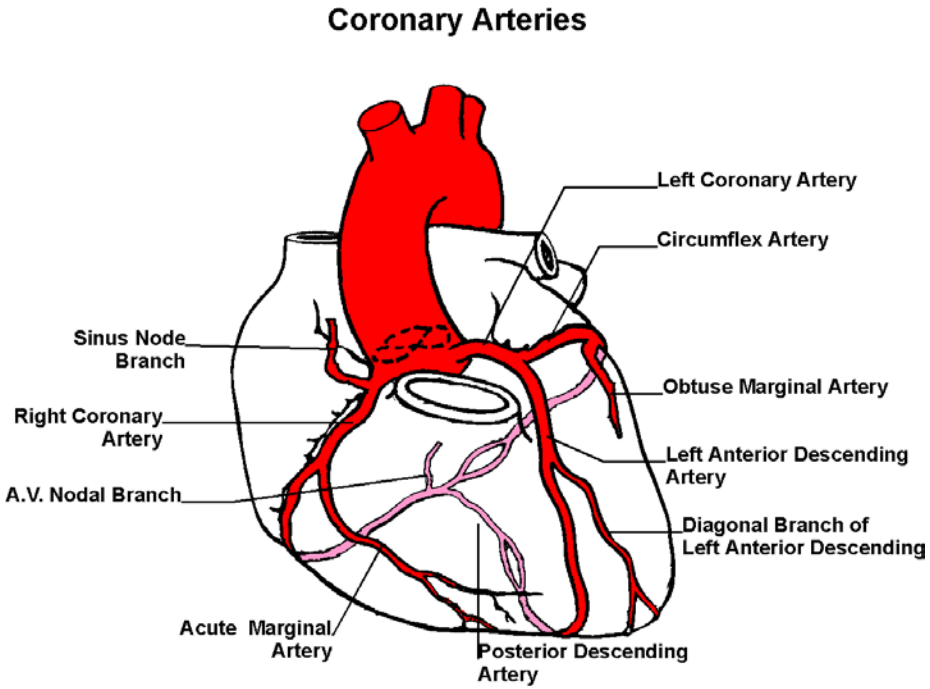

The aortic valve has three cusps, two of which give rise to the coronary arteries. The left coronary cusp gives rise to the left coronary artery. The right coronary cusp gives rise to the right coronary artery. The posterior non-coronary cusp does not usually give rise to a coronary artery.

Dominance of the coronary circulation is determined by which coronary gives rise to the Posterior Descending, a vessel supplying the apex of the heart. In 85%of cases, the PD is a branch of the right coronary artery, making it a right-dominant system. In 7% of cases, the PD is a branch of the LAD, making it a left-dominant system. In 8% of cases, the coronary circulation is co-dominant.

The Left Main coronary artery typically bifurcates into two branches, the left anterior descending artery (LAD) and the circumflex artery (Cx). Occasionally, a third branch called Ramus Intermedius may arise between the LAD and the Cx.

The LAD lies over the anterior aspect of the heart, courses through the anterior interventricular sulcus, a groove between the right and left ventricles. The LAD gives off several diagonal branches. These run diagonally on the anterolateral portion of the left ventricle. The first diagonal branch is designated as D1; the second diagonal branch is designated as D2; and so on. The first diagonal branch is used as an anatomic landmark in designating the different segments of the LAD. The segment of the LAD proximal to D1 between the origin of the LAD and the origin of D1 is called the proximal LAD. The most distal 1/3 of the LAD is called the distal LAD. The segment of the LAD between the proximal LAD and distal LAD is the mid-LAD. The LAD also gives off several branches called septal perforators (SP), which supply blood to the interventricular septum.

The right coronary artery (RCA) runs through the right atrioventricular sulcus, a groove between the right atrium and right ventricle. The RCA gives off several branches including the SA-nodal artery in most people, the acute marginal (AM) branch, the AV Nodal artery and usually the posterior descending artery.