Coronary CTA Anatomy
The right coronary artery arises from the anterior aortic sinus. In about 80% of individuals, the RCA continues along the atrioventricular groove around the heart towards a point where the atrioventricular groove and the posterior interventricular groove meet called the crux.
RCA
Visualization in the axial plane

Coronal MIP image represents the approximate plane of axial images
RCA Branches

- Generally the first branch of the RCA is the conus artery, it runs along the anterior surface of the right-ventricular outflow tract.

- The second branch is usually the sinoatrial node (the S-A nodal can also branch from the LT circumflex, and in some cases both routes are available).
The right coronary artery then gives rise to the acute marginal branch that travels along the anterior portion of the right ventricle. The acute marginal (AM) branch serves as the boundary between the proximal and mid portion of the RCA.
In 80% of individuals the RCA continues forward from the crux along the posterior interventricular groove to become the posterior descending artery (PDA). This is called RCA dominance. Septal branches that arise from the PDA supply the posterior third of the septum. The dominant RCA system also supplies a branch to the right atrioventricular node just as it leaves the right AV groove. A continuation of the RCA in the atrioventricular groove is called the posterior lateral branch. The PL branch runs parallel to the PDA and it supplies the posterio-inferior aspect of the left ventricle.
The left main coronary artery (LCA) arises from the left posterior aortic sinus and in the majority of individuals the length is usually about 1-2 cm. In 2/3 of patients the LCA tracts below the left atrial appendage and bifurcates into the left anterior descending artery (LAD) and the circumflex (LCX). In 1/3 of patients the LCA trifurcates into the left anterior descending artery, the circumflex and the intermediate artery (IM) : also called the ramus intermedius (RI).
The LAD passes to the left of the pulmonary trunk and runs anterior and inferior in the anterior interventricular groove towards the apex. In most individuals the courses around the apex to reach the inferior wall and septum.
The LAD gives rise to two main groups of branches. First are the septal branches, which supply the anterior two thirds of the septum. These branches can vary in size and distribution while the first septal branch divides the proximal LAD from the mid LAD.
The next group of branches from the LAD are the diagonal branches. This group lies on the lateral aspect of the left ventricle and may vary in size and distribution, but at least one is usually present.
The circumflex artery (LCX) turns posterior shortly after its origin and runs inferior in the left atrioventricular groove. It gives rise to a variable number of branches called marginal branches which lie on the lateral aspect of the left ventricle. A number of small atrial branches that supply the lateral and posterior regions of the left atrium can also rise from the LCX. When the PDA rises from the LCX a left coronary dominance exist. A co-dominant system exists when the RCA and LCX are similar in size.