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CORONARY ARTERIES

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This article described variations of coronary artery branching and topography.

9 isolated heart preparations and 2 heart-lung preparations of adults and children were analyzed by using the method of anatomic dissection under binocular magnifier, which were measured and photographed to study the topography and branching variations of the major coronary arteries. The blood supply to the pericardial layer was examined on the basis of 13 preparations of adults using the macro and microscopy method of elective Schiff staining of total anatomic preparations as described by M.G. Shubich and A.B. Khodos. The technique has been adjusted to the objects under study by the researchers of our department.

The morphological peculiarities of the coronary arteries were examined using the macrodissection method. The left coronary artery has demonstrated high-degree variability compared to the right coronary artery. The outer diameters of the coronary arteries are relatively constant. The diameter of the left coronary artery near the aorta varies in size between 3.5 mm and 6.5 mm. The vessel immediately divides into three branches. The diameter of the right coronary artery near the aorta varies in size between 4.0 mm and 9.0 mm. In all the examined samples, the artery had one branch, whereas small ramification branch off throughout its length. In one sample, the right coronary artery split into two branches of equal diameter. The arteries and their branches disappear in the depth of the cardiac muscle and the pericardial layer. The advantage of the Schiff staining method is that the reagent dyes the tiniest vessels that lie relatively deep. This is extremely important for macro and microscopic examinations when it comes to the sources of blood supply. The stained preparations revealed vascular plexuses formed by branches of different coronary arteries and their intra-system overlapping areas, which serves as a defence mechanism.

According to our findings, the diameter of coronary arteries varies. It depends on the heart size, the age and the sex of a patient. The left coronary artery is wider in diameter and has a larger number of branches due to a considerably overload of the left heart. The anastomoses of the smaller branches of the different arteries form vascular plexuses and intra-system overlapping areas.