Morphology of coronary arteries in human hearts

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Since the growing of new diagnostics methods to evaluate coronary diseases, as coronarygraphy or echodopplercardiography, the analysis of frequency and course of coronary arteries is necessary due to its variation. The aim of this study was to investigate the coronary arteries, showing the aspects of origin and frequency of the main and accessories branches. The study was carried out on 26 adult human hearts, of both sexes, fixed in 10% formalin, and stored in 70% alcohol. The coronary arteries and their branches had their paths and frequency analyzed. In 61.54% of the hearts the left coronary artery presented a bifurcation into anterior interventricular and circumflex branches and, in 38.46% raise a third branch, the median, intermediate frequency between studies of Ortale et al, 2005 and Cavalcanti et al, 1995. Pre-ventricular branches from left circumflex artery, the same as in Ortale et al, 2005, were presented in (20) 76.92% of hearts. The left marginal was observed in (19) 73.08% of hearts, like as Cavalcanti et al, 1995 study and in (11) 42.31% of the sample, the circumflex branch generated the left marginal and on average 1.5 posterior-basal branches. In only (1) 3.85% of hearts the circumflex branch raise the posterior interventricular branch. The right coronary ended in posterior interventricular in (25) 96.15% of all hearts, with similar proportions reported by Cavalcanti et al., 1995 and Ortale, 2004; however, in (21) 80.77% of them, this artery issued additionally posterior-lateral branches that reached the back face of the left ventricle. According to data of Ortale, 2004, the posterior diagonal branch from right coronary was presented in (7) 26.92% of hearts and the right marginal branch was observed in (14) 53.85% of hearts. The arteriosus cone branches from right coronary were found in (20) 76.92%, whereas in (3) 11.54% these branches arises directly from the aorta and (2) 7.69% from a common branch to the right coronary artery. Branches pre-ventricular and anterior diagonal from the right coronary were observed in (25) 96.15% and (15) 57.69% of hearts, respectively. The posterior interventricular branch pass by the cardiac apex in only (1) 3,85% of hearts and the anterior interventricular in (23) 88.46%, data discrepancies were reported by Cavalcanti et al, 1995 and Ortale, 2004. The myocardial bridges were found in 30.77% of the anterior interventricular artery. In the present study we observed that the coronary arteries exhibit a great variability regarding the quantity and origin of branches. This knowledge is important for the diagnosis of examinations and completion of cardiac surgery.