

A Preliminary Study on Anatomy of the Main Trunk of Left Coronary Artery in Sri Lankans

S. Udhayakumar^{1†} and S.G. Yasawardene²

¹Department of Anatomy, University of Jaffna, Sri Lanka

²Department of Anatomy, University of Sri Jayewardenepura, Sri Lanka

†sivananthini3@yahoo.com

Abstract: Morphological and morphometrical anatomy of coronary arteries remain to be of interest because of the high morbidity and mortality associated with coronary artery disease and due to recent advances in cardiac surgery, coronary angiography and angioplasty. The clinical impression of the diameter of coronary arteries to be smaller in Asians compared to Caucasians influence the likelihood of increase prevalence of coronary artery disease among Asians. We have investigated the morphology and morphometry of main trunk of left coronary artery (LMT). Forty adult fresh human hearts of Sri Lankans were obtained at autopsies with no history of coronary artery disease or other heart disease. The pericardium was removed and main trunk of left coronary artery was exposed under 5X magnification using a dissecting microscope. The length of the LMT was measured with a vernier caliper and the number of its terminal branches and the branching pattern was studied. Luminal diameter of the trunk was taken at its midpoint using stereomicroscope. With regard to the type of division of LMT, it was absent in one case where anterior interventricular and circumflex branches originated directly from the left aortic sinus. The LMT terminated by dividing into 2–4 branches. The bifurcation of the LMT into anterior interventricular and circumflex branches was the commonest (30/40). The existence of additional branches (diagonal arteries) were present in few instances (9/40). This could decrease the effects of occlusion of the major two branches of LMT. The average length of the LMT was $8.33\text{mm} \pm 3.7\text{SD}$ (range: 1.8–23 mm). Short LMT (≤ 5 mm) was present in 13% (5/39). The average diameter at its midpoint was $3.14\text{ mm} \pm 0.4\text{ SD}$ (range: 2.6–4.1mm). The short LMT need to be borne in mind during coronary perfusion and coronary angiography. The diameter of the LMT was similar to that reported in Indians (male $3.7 \pm 0.7\text{mm}$ and female $3.2 \pm 0.6\text{mm}$) and comparatively smaller than Caucasians ($4.86 \pm 0.8\text{mm}$). The findings of present study has important therapeutic implication, since smaller coronary arteries may give rise to technical difficulties during coronary bypass graft, interventional procedures and vulnerability to myocardial infarction. Extensive studies need to be carried out to confirm the results.

Keywords: Main trunk of left coronary artery, Morphology, Morphometry, Diameter, Sri Lankans