

Change in the Diameter of the Left Coronary Artery: Angiographic Study

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ABSTRACT

Background: Coronary artery diseases are among the top causes of death worldwide, and This leads to rapid advances in management. However, revisiting the basic knowledge of the coronary artery's diameter based on the developed investigation technology is essential.

Objectives: This study aimed to describe the diameter of the left main coronary artery at the opening, mid-length, and terminal parts. Also, it aimed to describe any changes in the diameter of the left coronary artery at the three points.

Methods: The study was a cross-sectional retrospective hospital-based design. A total of 356 angiograms were used (41.3% males and 58.7% females), with a mean age of 56.24±8.68 years in the study group. The study data was collected from the system records of three cardiac centers. To evaluate the change in diameter, the diameter of the left main coronary artery (LMCA) was measured at the origin (DLMCAO), mid-length left coronary artery (DLMCAM), and terminal parts (DLMCAT).

Results: The mean diameters of DLMCAO, DLMCAM, and DLMCAT were 3.8±0.72 mm, 3.8±0.48 mm, and 3.7±0.85 mm, respectively. The average diameter of the LMCA was 3.8±0.55 mm. Female participants had the highest mean age (58.3±6.95). The average diameters of LMCA at the three measurement points showed a gradual decrease among all participants, and the DLMCAO was the widest. Among all participants, there is a moderate to highly significant correlation between the DLMCAO, DLMCAM, and DLMCAT and the average diameter. A one-way ANOVA revealed no statistically significant difference between the DLMCAO, DLMCAM, and DLMCAT (P=0.37). Among males and females independently, there was a significant difference (P=0.0001).

Conclusion: The average diameter of the left coronary artery at the origin, mid-length, and terminal parts were 3.8±0.70 mm, 3.8±0.47 mm, and 3.7±0.84 mm, respectively. The average diameter of LMCA is larger than DLMCAO, DLMCAM, and DLMCAT. Females have smaller average diameters than males. The average diameters of LMCA at DLMCAO, DLMCAM, and DLMCAT show a gradual decrease. Among all participants, there was no significant difference in the measured diameters at the origin, middle, and terminal parts. However, male and female participants showed significant differences between the measured diameters, mid-length, and terminal parts.

Keywords:

Left coronary artery, diameter, change, angiographic, Sudanese.

List of abbreviations

LMCA = left (main) coronary artery

DLMCA = average diameter of the left (main) coronary artery

DLMCAO = average diameter of the left (main) coronary artery at the origin

DLMCAM = average diameter of the left (main) coronary artery at mid-length

DLMCAT = average diameter of the left (main) coronary artery at the terminal part

QCA = quantitative coronary angiography

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