

FRESH AUTOPSY STUDY OF DIMENSIONS OF ADULT MITRAL VALVE IN SRI LANKANS

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It is axiomatic that knowledge of cardiac anatomy is a prerequisite for the interpretation of echocardiography and for the surgical reconstruction of the valves. There appears to be a geographical variation on the norms of measurements for the heart valves. However, norms of dimensions have not been reported for Sri Lanka. This study was carried out to determine the mitral annular circumference (MAC) in Sri Lankans and to determine a definable relationship between the measurements obtained with demographic data of the individual.

The ethical clearance for this study was obtained from the Faculty of Medicine, University of Colombo and informed consent was obtained from the next of kin to collect the heart specimens. A total of 319 (267 male and 52 female) normal adult fresh autopsied hearts were included in the study with age ranging from 18–72 years. The sex, age, height and weight of the deceased person were recorded and the body surface area was calculated. The mitral valve circumference was measured at its annulus and contribution of the leaflets and commissures to the circumference were measured.

The mean size of the MAC was 94.41 mm \pm 5.9 SD in males and 84.62 mm \pm 8 SD in females and the difference was statistically significant ($p < 0.001$). Our results of circumference are comparable with those reported from India and lower than that of Caucasians. A significant positive relationship exists between the mitral annular circumference with age, height and body surface area of the person ($p < 0.05$). A significant regression equation; $MAC = 69.9 + 0.141 \text{ height} + 0.202 \text{ age} - 7.70 \text{ sex}$ (where sex takes value one if the gender is male and zero if it is female) was fitted which would be of use in predicting the mitral annular circumference. But only 42% of the variation can be explained by this model ($R\text{-Sq} = 41.9\%$). This highlights that the relationship between MAC and demographic data have not been clearly defined for adults. The contribution of the posterior mitral leaflet to the mitral annular circumference was 52% and that of anterior mitral leaflet was 34% while the commissural area occupied the balance 14%. This is comparable with a study on Africans but in Caucasians commissural area occupies a larger percentage (34%).

This study highlights that the measurements of MAC in Sri Lankans are smaller than that of Caucasians. The data would be of value in the manufacture of valves suitable to Sri Lankan hearts and in echocardiographic interpretation. Reduction of area occupied by commissures at the annulus encourages more rapid fusion of commissures after minimal rheumatic valvulitis. Large scale studies are needed to revalidate our findings and to produce norms of measurements for Sri Lankan adult population.

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