

Morphometric analysis of the foramen magnum in a sample of adult Sri Lankan skulls

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The foramen magnum (FM) that transmits a large number of vital structures is an important anatomical landmark in neurosurgical procedures and forensic anthropology. The objective of the present study was to determine the dimensions and shape of the FM in a sample of adult Sri Lankan skulls. Forty-four adult skulls (32 male and 12 female) were selected for the study. The sagittal (FMSD) and transverse (FMTD) diameters of the FM were measured using a sliding digital vernier caliper to the nearest 0.01 mm by one investigator. The area of the FM was calculated using Radinsky's formula; $A = 1/4 \times 3.14 \times \text{FMTD} \times \text{FMSD}$ and the index was calculated using the formula: $\text{FMTD} \times 100 / \text{FMSD}$. The skulls were visually assessed to determine the shape of the FM. The shape of the FM

was recorded as round, oval, egg-shaped, pentagonal, hexagonal or irregular. The mean sagittal and transverse diameter, area and index of FM in males were 34.62 ± 2.17 mm, 29.52 ± 2.13 mm, 695.77 ± 90.64 mm² and 85.41 ± 5.66 respectively, whereas they were 33.87 ± 2.31 mm, 28.28 ± 1.99 mm, 662.56 ± 98.67 mm² and 83.69 ± 6.13 respectively, in females. The shape of the foramen was found to be egg-shaped in 34.1% and round in 27.2% of cases. The size and shape of the FM are highly variable among different world populations. Skulls in the studied sample showed smaller FM in comparison with those of African, Mediterranean and European populations. Males displayed larger mean values than females for all measured variables.