

THE ORIGIN, COURSE AND BRANCHING PATTERN OF THE MIDDLE MENINGEAL ARTERY IN SRI LANKANS: A PRELIMINARY STUDY

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The Middle Meningeal Artery (MMA) is the largest of the arteries supplying the meninges. However, there are reports of anatomical variations in the origin, course and the branching pattern of the MMA. Fractures involving the squamous or petrous part of the temporal bone are likely to damage the MMA resulting in extradural haemorrhage. As such knowledge of variations is of clinical importance for purposes of complete ligation of the MMA. The present study therefore, aims at documenting the variations in the origin, course and the branching pattern of the MMA. The preliminary findings are presented here.

Twelve cadavers, eight males and four females with intact maxillary artery and skull were chosen. The origin and the entry point of the MMA into the middle cranial fossa were noted. The branching pattern of the MMA was documented using the simplified Adachi classification. Accordingly, the origin of the middle branch is used as the guideline to obtain three types; type 1, type 2 and type 3. The presence of a bony canal along the course of the anterior branch of the MMA was also noted. In addition, the distance from the foramen spinosum to the branching point of the MMA, and the length of the bony canal along the anterior branch of the MMA were measured.

In all cadavers the origin of the MMA was from the 3rd part of the maxillary artery and the entry point into the middle cranial fossa was through the foramen spinosum. Type 1 branching pattern of the MMA was found to be 75% and type 2, 17%. Type 3 branching pattern was not observed. In one cadaver the middle branch was not present. The distance from foramen spinosum to the branching point of the MMA on the right and left sides ranged from 4.13-33.57 mm (Median: 18.39) and 3.57 - 35.26 mm (Median: 18.67) respectively. A comparison of the same measurements in males and females showed a range of 4.13 - 35.26 mm (Median: 21.35) and 4.27 - 25.8 mm (Median: 12.9) respectively. The bony canal was present in 75%. The length of the bony canal along the course of the anterior branch of the MMA on the right and left sides ranged from 9.5 - 18.56 mm (Median: 14.20) and 12.8 - 26.6 mm (Median: 16.27) respectively. A comparison of the same between males and females showed a range of 9.5 - 27.7 mm (Median: 15.24) and 16.1 - 25.7 mm (Median: 10.12) respectively. There was no significant difference in the distance to the branching point, between the right and left sides ($p = 0.951$). However, this distance was significantly greater in males compared with females ($p = 0.039$). The length of the bony canal between the right and left sides ($p=0.76$), and the comparison between males and females was not significant ($p=0.40$).

This study shows a greater incidence of type 1 branching pattern of MMA, when compared with values of previous studies elsewhere. However, larger samples from different geographical areas and ethnic groups should be conducted to establish figures for Sri Lankans for the above parameters.