

Variations and Anomalies of the Posterior Cerebral Artery in a South African Population

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Abstract : Limited research focuses on the anatomy of the posterior cerebral artery (PCA) and its cortical branches, even though there can be variation in the presence, size, and origin. The PCA branching pattern has not been adequately reported, and the true division point remains unclear. Anomalies of the PCA have been described in the previous literature; however, few examples have been reported. Furthermore, possible differences between right and left, sex, population and age groups may exist. Therefore, the aim of this study was to report on these aspects from a South African population. One hundred and twenty-six hemispheres were obtained consisting of 86 males and 38 females, between the ages of 22 and 84 (average 45 years of age). This comprised of three population groups, namely coloured (n=74), black (n=38), white (n=10) and two unknown cases. The PCA was injected with an isotonic saline and a colored silicone. The external diameter was measured with a digital micrometer, and length was measured with a string and a ruler. Presence and origins of the cortical branches were similar to the literature; however, duplications, triplications, and unusual origins were observed. The diameter and lengths indicated significant differences between the right and left sides, sex, population and age groups. Branching patterns were identified and compared to the prevalence from previous studies. Two fenestrations were observed in the P2A segment. The presence, size, origin, branching pattern and anomalies of the PCA were investigated in this study. The diameter and length can be significantly different, especially between the right and left-hand side. Changes in the diameter and length can be indicative of certain neuropathological conditions and can play a role in aneurysms formation. Adequate knowledge of the normal and abnormal PCA anatomy is crucial for surgery in the vicinity of the PCA. Therefore, future studies should focus on these aspects.

Keywords : branching, cortical branches, fenestration, posterior cerebral artery

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