

Branching pattern of middle cerebral artery in an African population

Abstract:

Branching pattern of middle cerebral artery influences frequency of its aneurysms, and is of potential value in their surgical repair and diagnosis of stroke. This pattern shows inter-population variations but there is paucity of data from Africans. This study aimed at describing branching pattern among black Kenyans. Middle cerebral arteries numbering 288 from 144 formalin fixed brains obtained during dissection and autopsy at Department of Human Anatomy, University of Nairobi, Kenya were studied. Origin of the middle cerebral artery was identified at base of brain and its stem followed by gently separating the fronto-parietal and temporal lobes. Pattern of early cortical, lenticulostriate, and terminal branching was recorded and macrographs taken. Results were analyzed using SPSS version 13.0 for windows and presented using macrographs. All the brains had bilateral middle cerebral arteries which were continuations of the internal carotid artery. Variations of the artery observed included duplication (1.7%), early bifurcation (5.2%), and early cortical branching (47%), predominantly temporal (63.9%). Lenticulostriate arteries arose predominantly from the pre-bifurcation segment as single branches (64.6%), and as common trunks (35.4%). Modes of termination were bifurcation (82.3%), trifurcation (10.8%), primary trunks (6.2%), and quadrifurcation (0.7%). Cortical branching pattern of the middle cerebral artery resembles that of Caucasian and Indian populations suggesting equal vulnerability to aneurysms and stroke. Pattern of origin of lenticulostriate arteries, predominantly from the pre-bifurcation segment and higher percentage of common trunks implies that the population is more prone to ischemia after aneurysm repair. Extra diligence during operation on proximal middle cerebral artery is called for.