

Morphological characteristics of the anterior cerebral artery

Marija Papazova - Ace Dodevski - Biljana Zafirova - Julija Zhivadinovik - Niki Matveeva - Dobrila Lazarova

Institute of Anatomy, Medical Faculty, "SS. Cyril and Methodius University", Skopje, Macedonia

Cerebral circulation, especially arterial, in recent decades has attracted the interest of anatomists and clinicians. The anterior cerebral artery (ACA) arises from the termination of the ipsilateral internal carotid artery, and supplies blood to the medial regions of the frontal and parietal cortex, corpus callosum and falx cerebri. The ACA is usually divided into 5 segments. The aim of this study was to determine the morphological and topographic characteristics of the A1 or precommunicating segment of the ACA. The investigations of anatomical characteristics of the A1 segment of ACA was made on 133 human brains without cerebrovascular pathology, from both sexes at age from 23 to 68. Brains were fixed in a 10% solution of formaldehyde, and the obtained material was analyzed using a stereoscopic light microscope. The length of the A1 segment of ACA was in range from 6.8 to 20.8 mm, with mean value of 13.9 mm on the left side and from 7.4 to 21.8 mm, with mean value of 14.6 mm on the right side. The diameter of A1 segment of ACA on the left side was in range from 1.1 to 3 mm, with a mean value of 2.2 mm. The diameter of A1 segment of ACA on the right side was in range from 0.6 to 3.1 mm, with a mean value of 2.0 mm. Hypoplastic caliber of A1 segment of the ACA was noticed in 8% and in 0.5% duplication of the A1 segment of the ACA was registered. Detailed anatomical knowledge of the A1 segment of ACA is important when considering vascular surgery in the area of the anterior portion of the circle of Willis, since is the most common site of intracranial aneurysm formation.

References

- [1] Pai et al. (2005) Microsurgical anatomy of the anterior cerebral artery – anterior communicating artery complex: An Indian study. *Neurology Asia*; 2005, 10:21-28.
- [2] Shinde et al. (2016) Anatomical variations in anterior cerebral artery in human cadavers. *Int J Anat Res*; 4(2):2269-2272; doi: 10.16965/ijar.2016.193.

Keywords

Anterior cerebral artery; anatomy; origin; diameter.