



Neurocirugía

<https://www.revistaneurocirugia.com>



C0414 - BASAL PERFORATING ARTERIES OF THE ANTERIOR COMMUNICATING ARTERY: ANATOMICAL STUDY AND IMPLICATIONS FOR SUPRACHIASMATIC REGION SURGERY

E. Najera Aguilar, H. Truong and J.C. Fernández-Miranda

UPCM Pittsburgh, PA, USA.

Resumen

Objectives: Here we aim to evaluate the anatomical variations of the basal perforating branches of the AcomA, with emphasis on the Subcallosal artery (SbA), and we discuss the clinical implications of the findings when approaching the suprachiasmatic subcallosal region from endoscopic endonasal and transcranial routes.

Methods: The origin, course, diameter, and branching pattern of the basal perforating branches of the AcomA (subcallosal, hypothalamic, and chiasmatic) were studied in 33 specimens, from both transcranial and endonasal perspectives.

Results: The SbA was present in 79% of the specimens as a single dominant artery arising from the posterior or posterosuperior surface of the AcomA. It arose from the AcomA, either along with the hypothalamic arteries in 55% or as a single artery in 24%. Its course was first posteriorly towards the region of the lamina terminalis, where it then curved superiorly to reach the subcallosal area. The SbA gave off many terminal branches to supply to the subcallosal region. Importantly, it supplied blood bilaterally to the septal/subcallosal region in all cases. Therefore, disruption of the SbA could lead to bilateral vascular compromise of the septal area and result in a devastating neurological deficit. The hypothalamic arteries were found in all the cases. They arose from the AcomA (56%), from A1-AcomA junction (34%), and from A1 segment in (10%). These arteries supplied the anterior hypothalamus and frequently anastomosed with branches of the SbA. The chiasmatic arteries were present in 85% of cases. These arteries supplied the upper surface of the optic chiasm.

Conclusions: The SbA is a unique vessel because it supplies the septal region bilaterally. The anterior hypothalamic region is supplied by multiple branches from the AcomA and also from the A1. Preservation of these vessels during surgery to treat suprachiasmatic tumors or aneurysms with postero-inferior projection is crucial to a successful outcome.