Duplication of the middle cerebral artery

Duplication of the middle cerebral artery (DMCA) is an anomalous vessel arising from the internal carotid artery (ICA). Aneurysms at the origin of a DMCA have been reported; however, most have been treated with clipping surgery. Fujimoto et al. described two cases of aneurysms at the origin of a DMCA treated with coil embolization.

Case presentation: Case 1: A seventy-three-year-old man presented with a severe headache and was diagnosed with subarachnoid hemorrhage (SAH). Digital subtraction angiography (DSA) and 3-dimensional (3-D) DSA showed an aneurysm arising from a DMCA. Coil embolization was performed with DMCA patency. The patient had an uneventful postoperative course. CASE 1: A 44-year-old woman presented with a history of clipping for an IC-anterior choroidal artery (AchA) aneurysm 8 years prior. Magnetic resonance imaging (MRI) showed regrowth of the aneurysm. 3-D DSA showed an IC-DMCA aneurysm located laterally and distal to the AchA. The DMCA arose from the bottom of the aneurysm. Coil embolization was performed without DMCA occlusion and showed no postoperative ischemic changes.

Duplication of the middle cerebral artery aneurysm is rare and may be misdiagnosed as an anterior choroidal artery aneurysm. Clinicians should perform a 3D-DSA evaluation if the aneurysm arises from the lateral wall of the IC to obtain a precise diagnosis and to preserve the DMCA during coil embolization [1].

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Fujimoto K, Hashimoto H, Uchiyama Y, Maekawa H, Shida Y, Nakagawa I. Duplicated Middle Cerebral Artery Aneurysms Treated by Coil Embolization; A Report of Two Cases and Literature Review. J Stroke Cerebrovasc Dis. 2021 Apr 14;30(7):105773. doi: 10.1016/j.jstrokecerebrovasdis.2021.105773. Epub ahead of print. PMID: 33865230.