

Anatomy of the Middle Meningial Artery

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Introduction

The middle meninge artery (MMA) is an important in neurosurgery. Being the largest maxillary artery branch, it provides nutrition to meninges and frontal and parietal bones. Many diseases, including dural arteriovenous fistula (AVF), pseudoaneurysm, true aneurysm, traumatic arteriovenous fistula (FAVT), Moya-Moya's disease (DMM), recurrent chronic subdural hematoma (HSDC), migraine and meningioma may be related to MMA.

Methods

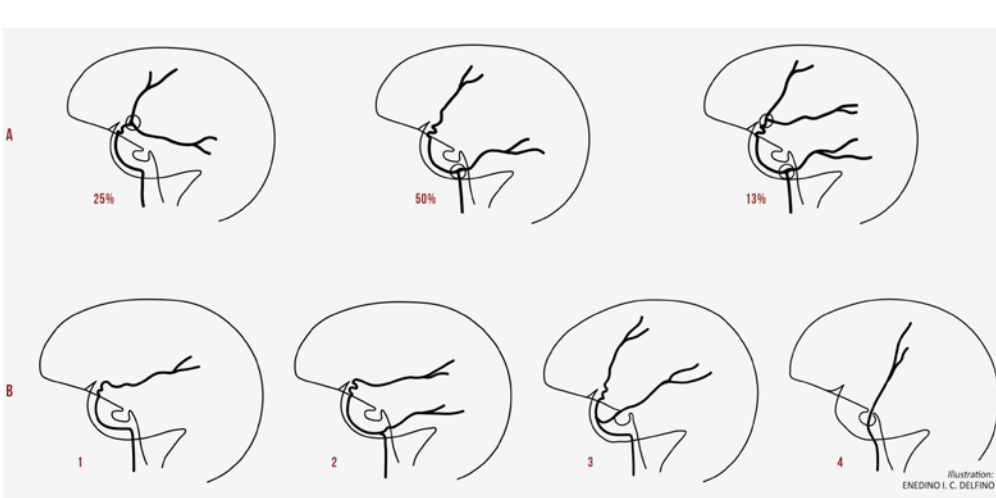
Literature review article using the following databases: PubMed, Scielo, Scientific Direct, Ebsco, LILACS, TripDataBase, and Cochrane. The descriptors used were: Middle meningeal artery; Neurosurgery; Neuroanatomy; Dura-Matter and Blood Irrigation. Articles from 1896 to 2017 were selected, in a total of 68 articles that met the inclusion criteria taking into account their citations and their respective impacts.

Results

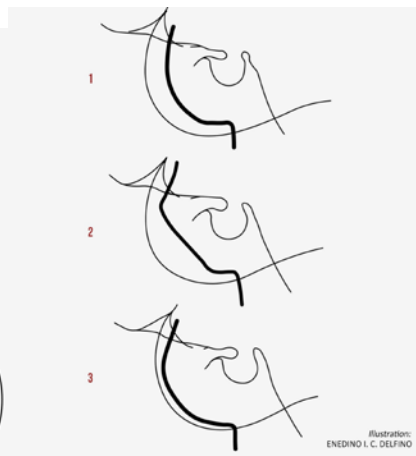
MMA is embedded in a skull sulcus, and traumatic or iatrogenic factors may result in pseudoaneurysms or AFVs associated with this vessel, and when hemodynamic stress increases, a true aneurysm may develop. FAVs, pseudoaneurysms, and true aneurysms can be effectively treated by endovascular or surgical removal. In MoyaMoya disease (MMD), MMA plays an important role in the development and compensation of collateral circulation. In the case of recurrent chronic subdural hematoma, when conventional surgery and drainage fail, MMA embolization may be a good option.

Conclusions

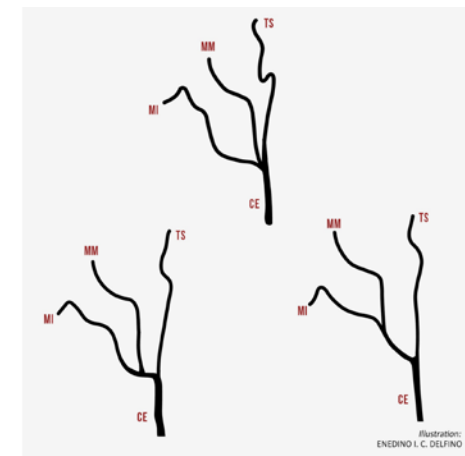
MMA is a clinically significant structure in the treatment of neurosurgical diseases. It is inserted into a skull sulcus, and trauma or iatrogenic factors may result in pseudoaneurysms or DAVFs in MMA, and when hemodynamic stress increases, a true aneurysm may appear. DAVFs, pseudoaneurysms, and true aneurysms can be treated effectively by endovascular or surgical removal.



Variations in the ramification of the middle meningeal artery. A, Most common and, B, less common types of branching.



Relation of the middle meningeal artery to the middle cranial fossa in the lateral projection. Types 1 and 3 are most often seen at carotid arteriography.



Variations in the origin of the middle meningeal artery from the internal maxillary artery. CE, External carotid artery; MI, maxillary artery; MM, middle meningeal artery; TS, superficial temporal artery.