

Clinical Image

The Importance of Diagnosis of Infraoptic Course of Both Anterior Cerebral Arteries

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Submitted: 30 July 2020

Accepted: 07 August 2020

Published: 08 August 2020

ISSN: 2378-9344

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Abstract

A1 segment: Precommunicating Anterior Cerebral Artery; ACA: Anterior Cerebral Arteries; ACoA: Anterior Communicating Artery; DSA: Digital Subtraction Angiograph.

CLINICAL IMAGE

A 29-year-old woman was admitted to emergency room after developing a sudden severe headache. Brain computed tomography revealed a diffuse subarachnoid hemorrhage in the interhemispheric and suprasellar cisterns.

The digital subtraction angiography (DSA) demonstrated a saccular pericallosal aneurysm at the origin of the frontopolar artery on left A2 branch. DSA also revealed both anterior cerebral arteries (ACA) originated from the ipsilateral internal carotid arteries at level of the ophthalmic segment. There was an initial horizontal-medial course of both A1 segment of the ACA, followed by an ascent to join the normally positioned anterior communicating artery. The origin and course of the A1 segment were consistent with an infraoptic course of ACA. The aneurysm was treated by endovascular coil embolization and the patient's neurological status remained the same until the time of discharge.

The presence of an infraoptic course of the proximal precommunicating segment of the anterior cerebral artery is an extremely rare anomaly. Similar to other variations in the circle of Willis, the prevalence of cerebral aneurysms associated with an infraoptic course of the ACA is higher. The most common site of aneurysm formation is at the anterior cerebral artery-anterior communicating artery (ACA-ACoA) complex [1]. Recognition of this anomaly is important in planning surgery for ACA-ACoA complex aneurysms in order to identify proximal arterial control of the aneurysm. Failure to account for this anomaly might result in unnecessary dissection along and possible damage to the optic apparatus or inferior frontal lobe during aneurysm repair. Identification of this anomaly pre-operatively can enhance surgical safety in aneurysm clipping [2]. Endovascular treatment

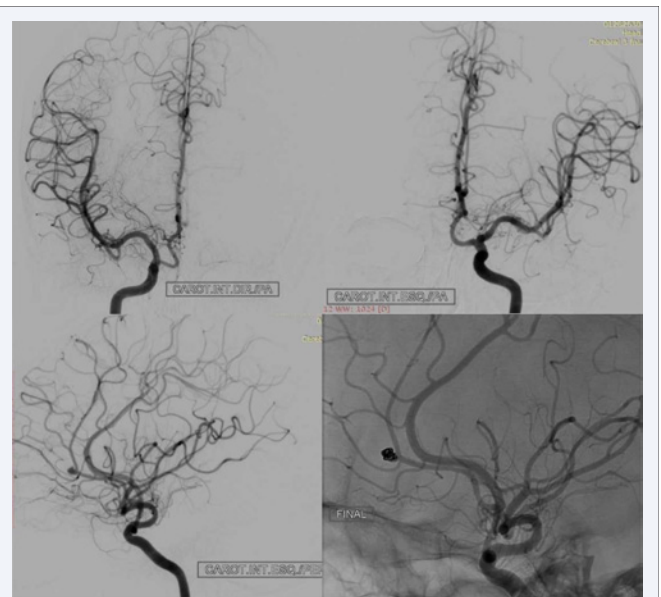


Figure 1 A: Anteroposterior digital subtracted angiogram showing right anterior cerebral artery originated from the internal carotid artery at level of the ophthalmic segment. B: Anteroposterior digital subtracted angiogram showing left anterior cerebral artery originated from the internal carotid artery at level of the ophthalmic segment. C: Lateral digital subtracted angiogram showing left anterior cerebral artery originated from the internal carotid artery at level of the ophthalmic segment and an aneurysm at A2 segment of pericallosal artery. D: Final angiogram showing the treated aneurysm.

can be an alternative treatment, and in some cases coiling should be easier to perform because of a straighter configuration of the vessel and a larger size of infraoptic A1 when compared to the normal supraoptic A1 artery [3] (Figure 1).

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Cite this article

de Almeida Silva JM, Soares Dias GM, Rezende AL (2020) The Importance of Diagnosis of Infraoptic Course of Both Anterior Cerebral Arteries. *Ann Vasc Med Res* 7(4): 1117.