

Giant Internal Carotid Artery Aneurysm of the Cavernous Segment

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A 70-year-old woman with a history of hypertension developed acute onset of severe tightness headache accompanied by vomiting. Patient reported having right diplopia and occasional and temporary right peripheral facial paralysis for two weeks. Neurological examination revealed only a right squint. Cerebral multi-detector computed tomographic angiography (MD-CTA) and Magnetic Resonance Imaging (MRI) revealed a giant right internal carotid aneurysm (2.7 cm) at the cavernous segment (Figure 1A, 1B). No abnormalities were noted in subarachnoid spaces and white - grey matter. A selective digital subtraction angiography (DSA) of the right internal carotid artery confirmed the giant aneurysm at the cavernous segment (Figure 2A, 2B). Subsequently endovascular flow-diverting stent was deployed at the cavernous segment of the right internal carotid artery to treat over time the giant aneurysm. Her clinical course has no neurological symptoms and she was discharged after two days with established over time clinical and imaging follow-up.

Giant intracranial aneurysms and vascular anomalies of the internal carotid are rare, and are defined “giant” those greater than 2.5 cm in diameter⁽¹⁻⁴⁾. Conservative treatment of giant intracranial aneurysms have a mortality rates of 65-100% in 2-5 years⁽⁴⁾. Clinical presentation of internal carotid aneurysms at the petrous segment can manifest from no-symptom to headache, cranial nerve disturbs and epistaxis⁽¹⁻⁴⁾. MD-CTA and MRI are the two gold standard methods for diagnosis in patients with suspected internal carotid artery and intracranial artery aneurysm^(1,5). Internal carotid aneurysms at the cavernous segment are located in a surgically difficult accessible area, therefore endovascular percutaneous techniques are considered the first lines treatments⁽⁶⁾.

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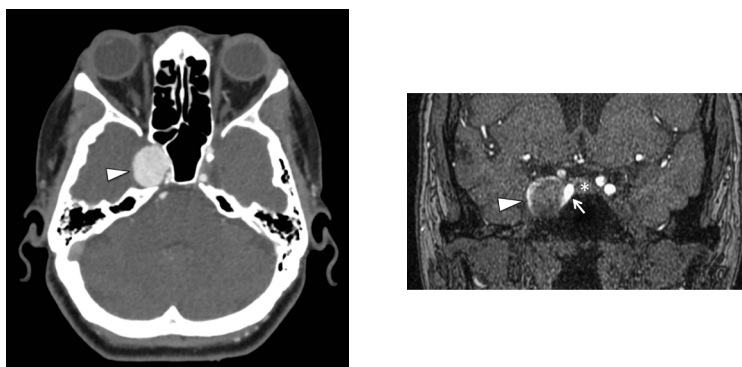


Figure 1A-B: A) Cerebral multi-detector computed tomographic angiography (MD-CTA) axial image and (B) Magnetic Resonance Imaging with coronal multi planar reconstruction revealed the giant (27 mm in diameter) right internal carotid aneurysm at the cavernous segment (arrowhead). Note normal segment of right internal carotid (arrow) and pituitary gland (*).

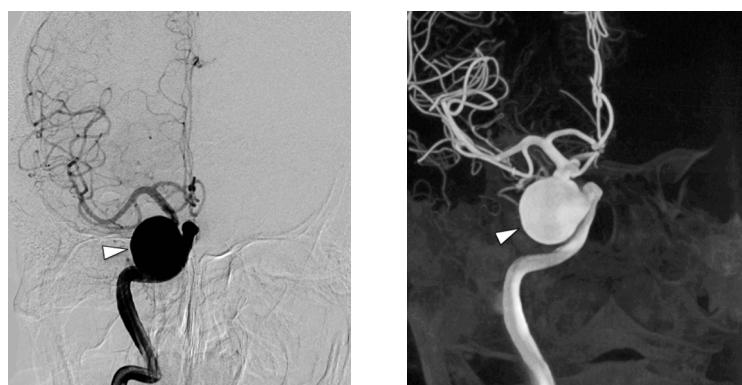


Figure 2: Selective digital subtraction angiography (DSA) (A) and 3D intravascular reconstruction (B) of the right internal carotid artery that confirms the giant right internal carotid aneurysm at the cavernous segment (arrowhead).

REFERENCE

1. Zakaria Hakma Z, Ramaswamy R, Loftus CM. Mortality rates for giant aneurysms. *Acta Neurochir* 2011; 153: 1621–1623
2. Rebella G, Basso L, Federici M, Castaldi A. Recurrent Epistaxis of Unknown Origin: the Role of Imaging. *Acta Neurol Taiwan* 2019; 15; 28(4): 126-130.
3. Rebella G, Castaldi A, Rossi UG. Duplication of Intracavernous Internal Carotid Artery. *Acta Neurol Taiwan* 2019; 28: 31-32.
4. Wiebers DO, Whisnant JP, Huston J 3rd, Meissner I, Brown RD Jr, Piepgras DG, Forbes GS, Thielen K, Nichols D, O’Fallon WM, Peacock J, Jaeger L, Kassell NF, Kongable-Beckman GL, Torner JC; International Study of Unruptured Intracranial Aneurysms Investigators. Unruptured intracranial aneurysms: natural history, clinical outcome and risks of surgical and endovascular treatment. *Lancet* 2003; 362: 103-110.
5. Rossi UG, Cariati M. Images in vascular medicine. Extracranial internal carotid artery saccular aneurysm. *Vasc Med*. 2013; 18 (6): 376.
6. Laurent P, Gawlitzka m, Soize S. Unruptured intracranial aneurysms: management strategy and current endovascular treatment options. *Expert Rev Neurother* 2017; 17: 977-986.