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Visual Case Discussion

Emergency bypass for middle cerebral artery dissecting aneurysm: A case report

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Case presentation

The authors report the case of a 35 year old man without past medical history who consulted in a regional hospital on June 2017 for headaches worsening progressively, he received pain relievers but due to persistence of headaches he consulted in a university hospital where a brain Computed Tomography (CT) scan was performed. It revealed a left fronto parietal hyperdensity and the brain CT angiography scan showed a giant fusiform aneurysm of the first segment (M1) of the left middle cerebral artery (MCA) (Fig. 1.); so the patient was referred to our hospital for further investigations and management. Clinical examination at admission found conscious patient, complaining of headaches. The following day the patient presented with a paralysis of the right half of the tongue and a right upper limb monoparesia scored 3/5. To investigate this cheiro oral syndrome we performed a digital subtraction angiography (DSA) of the left internal carotid artery (ICA) which revealed a fusiform dilation above a stenosis of the M1 (Fig. 2.) suggesting a dissecting aneurysm. We operated the patient on an emergency basis in order to revascularize the ischemic territory because of the worsening deficit and the language disorder. The patient was operated under general anesthesia; after harvesting the superficial temporal artery under operative microscope, we performed a temporal bone flap and identified a cortical segment of MCA; we performed a bypass consisting of anastomosis of the superficial temporal artery (STA) and the cortical segment of the middle cerebral artery (Fig. 3.). There was complete recovery of the motor deficit, and headaches immediately post operatively. Seven days after surgery we performed a brain MR Angio which showed a good patency of the STA-MCA anastomosis and the perfusion_weighted imaging detected improvement in perfusion of the left fronto parietal area (Fig. 4.). The patient was discharged from the hospital ten days post operation.

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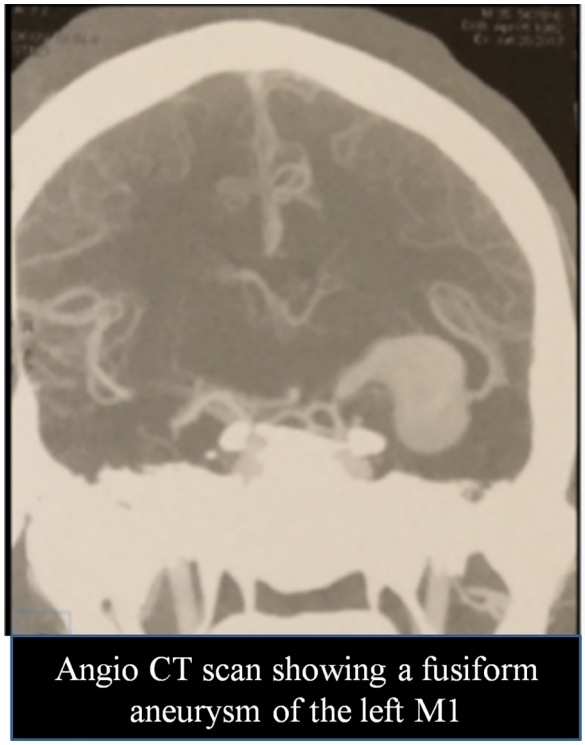

Fig. 1. Brain angio computed tomography scan showing a giant fusiform aneurysm of the first segment of the left middle cerebral artery.

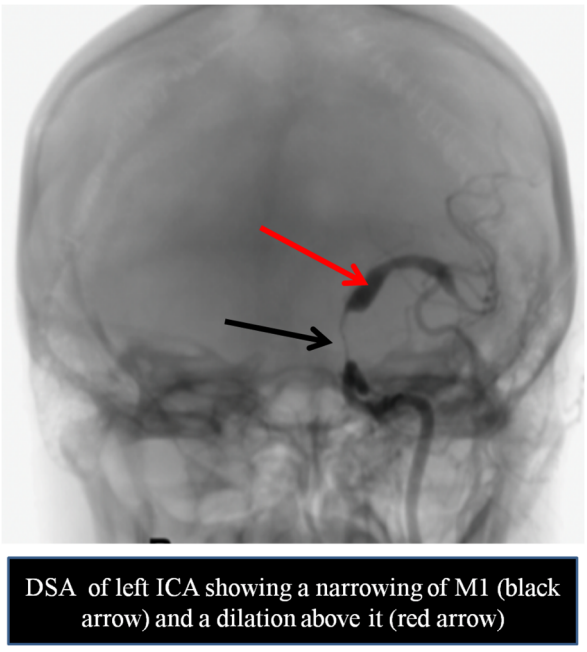

Fig. 2. Digital subtraction angiography of left internal carotid artery revealing a fusiform dilation above a stenosis of the M1.

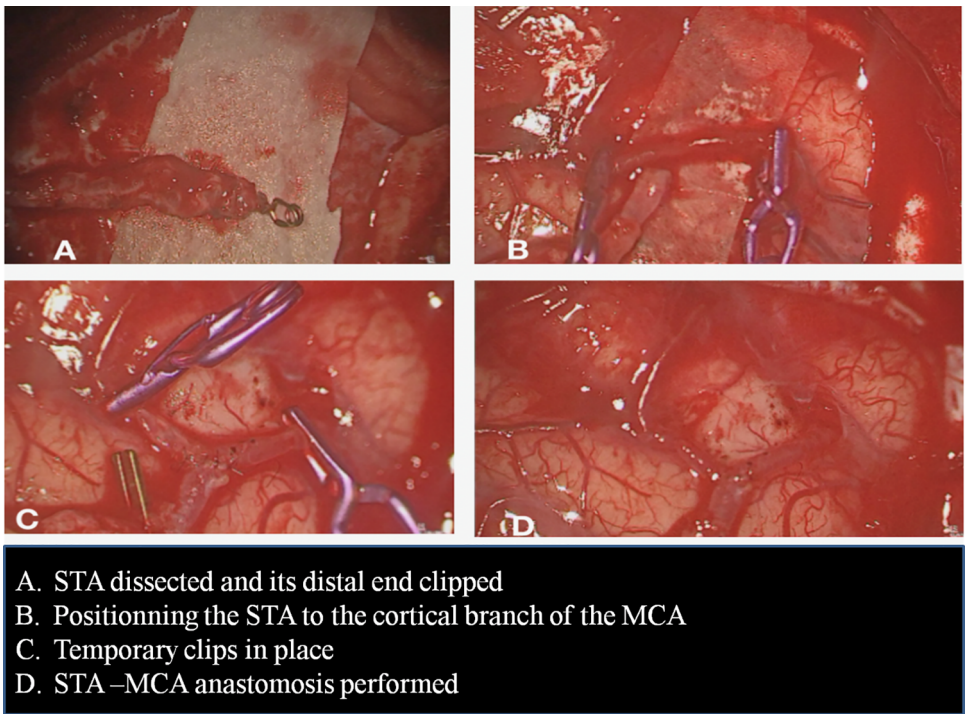

Fig. 3. Bypass: STA-MCA anastomosis steps.

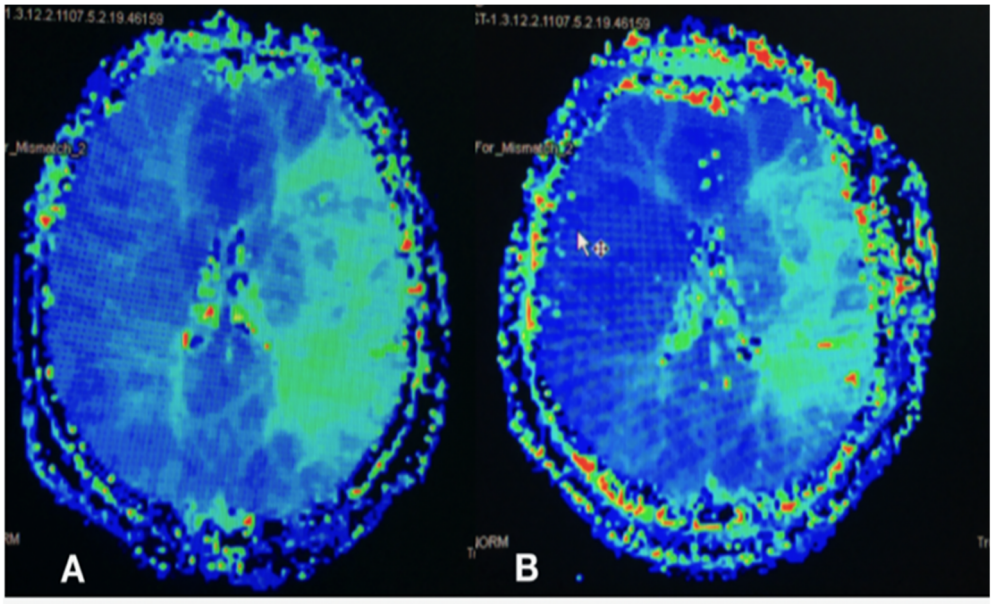

Fig. 4. Perfusion-weighted imaging detecting the improvement of the perfusion in the left fronto parietal area.

Conflict of interest

None

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.visj.2018.12.012.

Questions

1. Subarachnoid hemorrhage can be the revelation sign of the middle cerebral artery dissecting aneurysm?
   a. True
   b. False

2. Brain CT scan is sufficient investigation for the diagnosis of the middle cerebral arterydissecting aneurysm?
   a. True
   b. False

3. Is revascularization the optimum treatment of dissecting aneurysm of the middle cerebral artery with cerebral infarction?
   a. True
   b. False

Answers

1. True. Explanation: The rupture can occur on dissecting aneurysm. It can also cause cerebral hemorrhage, ischemic stroke, or, rarely, combination of hemorrhage and ischemia. Reference: Tae-Seop Im, Yoon-Soo Lee, Sang-Jun Suh, Jeong-Ho Lee, Kee-Young Ryu, Dong-Gee Kang, Two cases of subarachnoid hemorrhage from spontaneous anterior cerebral artery dissection: A case of simultaneous hemorrhage and ischemia without aneurysmal formation and another case of hemorrhage with aneurysmal formation, J Cerebrovascular Endovascular Neurosurgery, ISSN 2234-8565, EISSN 2287-3139, doi: 10.7461/jcen.2014.16.2.119.

2. False. Explanation: Angiographic studies made possible a definitive diagnosis because they demonstrated pathognomonic and characteristic findings of dissecting aneurysms such as a double lumen and string signs MR imaging may be a less invasive supplementarytool to cerebral angiography and helpful in confirming the diagnosis and in following the evolution of the aneurysms. Reference: M.D. Masahito Kurino, M.D. Susumu Yoshioka and M.D. Yukitaka Ushio, Spontaneous dissecting aneurysms of anterior and middle cerebral artery associated with brain infarction: A case report and review of the literature, Surg Neurol 57, 2002, 428-437.

3. False. Explanation: No optimum treatment for IAD has been established, although various treatment methods have been proposed. Reconstructive methods, such as selective aneurysm sac occlusion with clips or coils and stenting, are intended to preserve the parent artery, whereas deconstructive methods, such as parent artery occlusion by trapping or proximal occlusion, sacrifice the parent artery. Reference: H Ono, T Inoue, S Suematsu, T Tanishima, A Tamura, I Saito, et al., Middle cerebral artery dissection causing subarachnoid hemorrhage and cerebral infarction: Trapping with high-flow bypass preserving the lenticulostriate artery, Surg Neurol Int 8, 2017, 157.