

Case Lessons

Endovascular treatment in Intracranial atherosclerosis disease

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Introduction: Conservative treatment for intracranial artery stenosis includes antiplatelet or anticoagulation therapy². Although efforts to mitigate stroke risk persist, the pursuit of alternatives like percutaneous transluminal angioplasty and the consideration of intracranial stenting are recommended when the expertise exist. Prudent patient selection is imperative to minimize perioperative complications in cases of intracranial stenosis¹.

Case presentation: 74-year-old female, presented to the emergency room with 4 recurrent transitory episodes of right motor deficit and motor aphasia. Comorbidities: Stage 2 hypertension and Dyslipidemia.

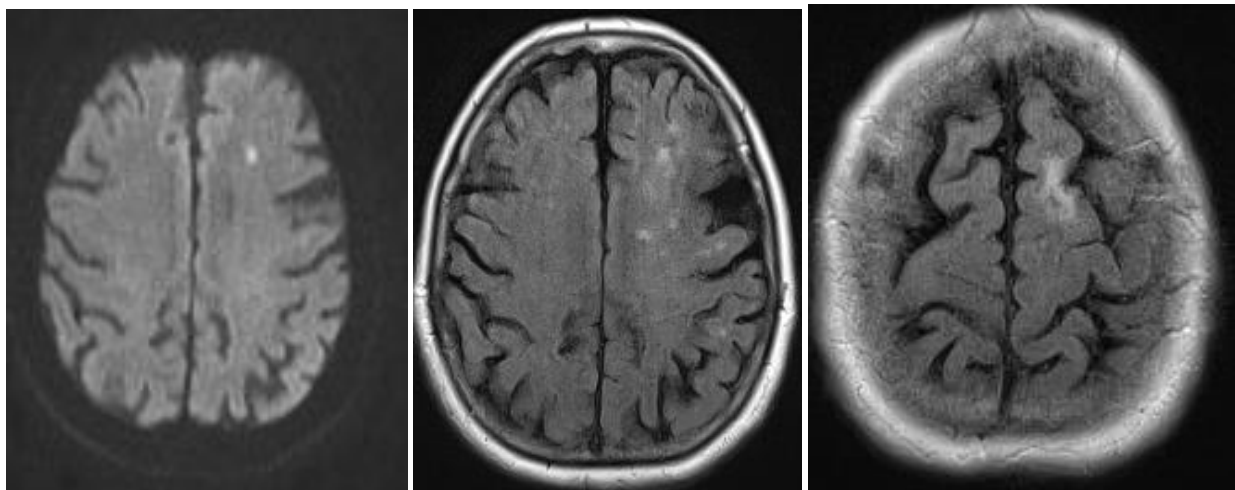


Fig 1: MRA Small ischemic lesions in the left ACA-MCA junction with evidence of left severe supraclinoid ICA stenosis

DSA (Comment of Professor Emmanuel Houdart): Severe left supraclinoid ICA stenosis, with hypoplastic AComA leading to the absence of the left territory feeding from the right ICA. In conditions where stenosis of the left ICA, responsible for hemodynamic infarcts, and decreased perfusion of the right MCA is evident, angioplasty of the left ICA, is recommended to prevent infarcts in both territories.

Endovascular procedure: GA. femoral access was performed and the 8F introducer was placed. Left ICA was catheterized through the introducer and a Neuronmax 6F retention catheter was placed in the cervical portion of left ICA. A-P, L-L, oblique and 3D projections were obtained. Severe stenosis of the tip of the ICA before its bifurcation is evident. Neurospeed catheter with 2x8 mm balloon is passed. The stenosis is predilated with a balloon, then the Credo 4x15 m auto expandable stent is placed, from the left M1 to proximally to the stenosis. At the end of the procedure, a good opening of the stent is observed. No complications during the procedure. The procedure is performed under protection with 5000 IU of heparin, and preliminary preparation with plavix/aspirin. The patient is transported to resuscitation. Stent angioplasty of the stenosis of the Left supraclinoid ICA.

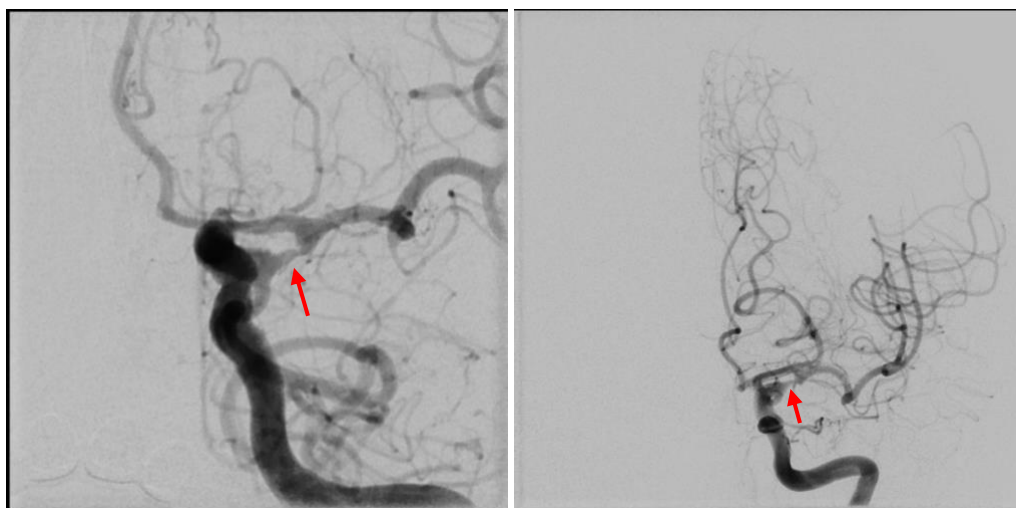


Fig 2: Severe stenosis of the tip of the ICA before its bifurcation is evident

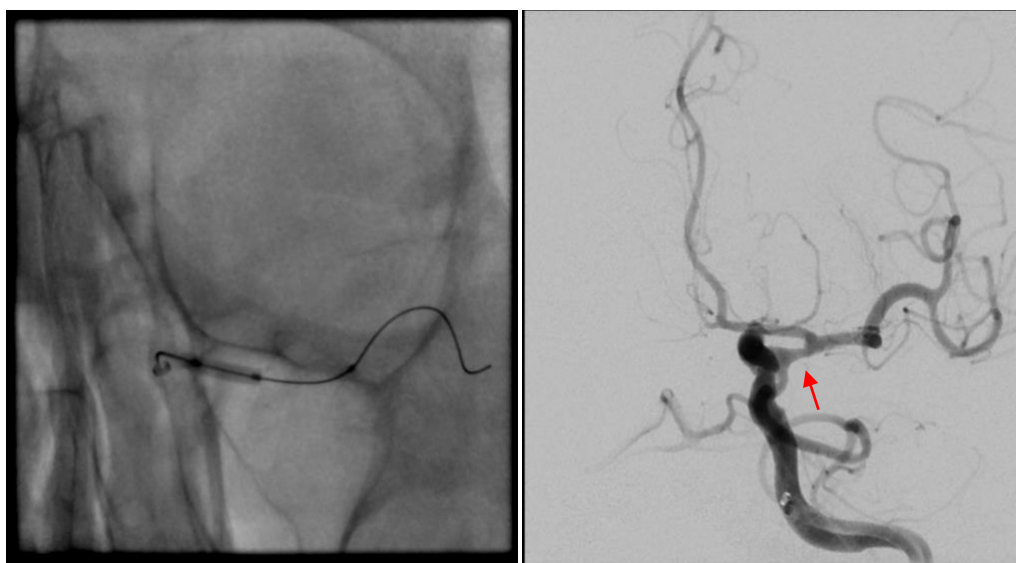


Fig 3: The stenosis is predilated with a balloon, then the Credo 4x15 m auto expandable stent and good opening of the stent is observed.

Discussion: The effect of endovascular recanalization by stent angioplasty can restore atherosclerotic stenosis^{2,3}. Recanalization can improve hemodynamic hypoperfusion distal to the stenosis. Early treatment after an ischemic event is crucial to prevent recurrent ischemic events in patients with intracranial stenosis. Tailoring the choice of endovascular treatment to the individual patient's underlying pathophysiology and characteristics of ICAD is essential. It should be discussed in Stroke Teams case by case. Future advancements in interventional techniques and stent design are expected to enhance outcomes⁴.

Conclusion: In selected cases with dynamic changes as in ours, the endovascular treatment of ICAD, is strongly recommended in expert hands.

References:

1. Stenting versus Aggressive Medical Therapy for Intracranial Arterial Stenosis *N Engl J Med* 2011;365:993-1003 DOI: 10.1056/NEJMoa1105335 VOL. 365 NO. 11
2. Arenillas, JF. Intracranial atherosclerosis: current concepts. *Stroke* 2011;42:Suppl:S20-S23
3. Treatment of Atherosclerotic Intracranial Arterial Stenosis Originally published 30 Apr 2009 <https://doi.org/10.1161/STROKEAHA.108.537589> *Stroke*. 2009;40:2257–2261
4. Intracranial Atherosclerotic Stenoses: Pathophysiology, Epidemiology, Risk Factors and Current Therapy Options 2020 Apr 8. doi: 10.1007/s12325-020-01291-4