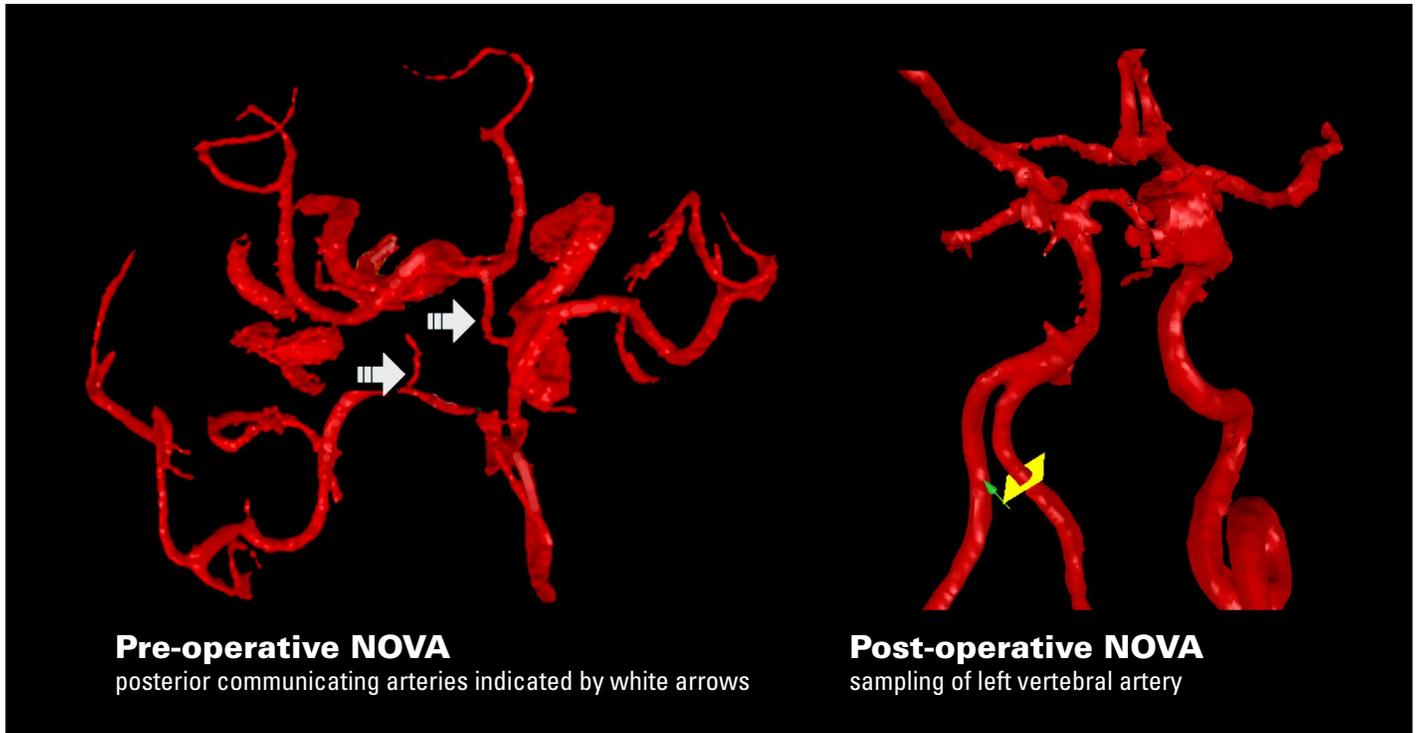


Anterior Circulation Hemispheric Hemodynamic Ischemia in the setting of Occult Subclavian Steal

NOVA™

Case No. 003



“Non-invasive assessment of the quantity and direction of blood flow with NOVA guided our interventional strategy and provided post operative verification of successful hemispheric revascularization.”

Anterior Circulation Hemispheric Hemodynamic Ischemia in the setting of Occult Subclavian Steal

Patient History

- ❖ 57 year-old right-handed gentleman
- ❖ Presented with transient right hemispheric symptoms which included left hemianesthesia and dysarthria

Standard Imaging:

MRI of the brain showed a watershed ischemic infarct involving the right hemisphere
 MRA suggested a right ICA occlusion and the presence of a patent posterior communicating artery

NOVA Study

Pre-operative NOVA confirmed a relative right hemispheric hypoperfusion as shown by the asymmetry in right and left MCA flow. NOVA also revealed a left subclavian steal phenomenon with reversal of flow in the left vertebral artery. Good posterior circulation collaterals and supranormal right vertebral artery flow were noted.

The patient apparently did not exhibit posterior circulation symptoms associated with the subclavian steal due to the ability of the right vertebral artery to provide compensatory flow. However, once the occlusion developed in the right ICA, there was insufficient anterior and posterior reserve. The subclavian steal at this point exacerbated the right hemispheric hypoperfusion.

Revascularization Strategy

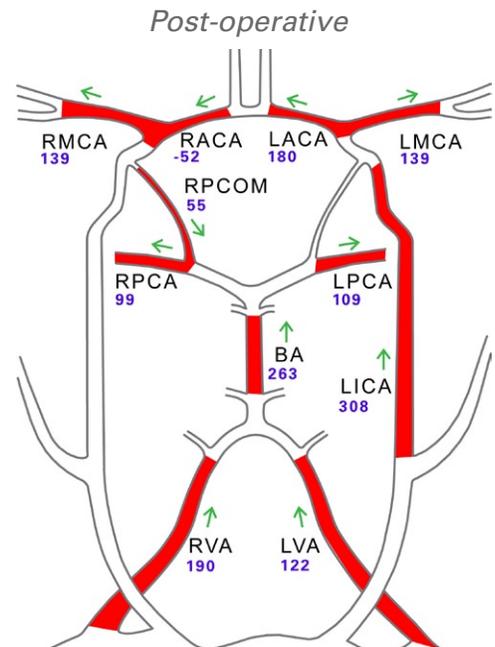
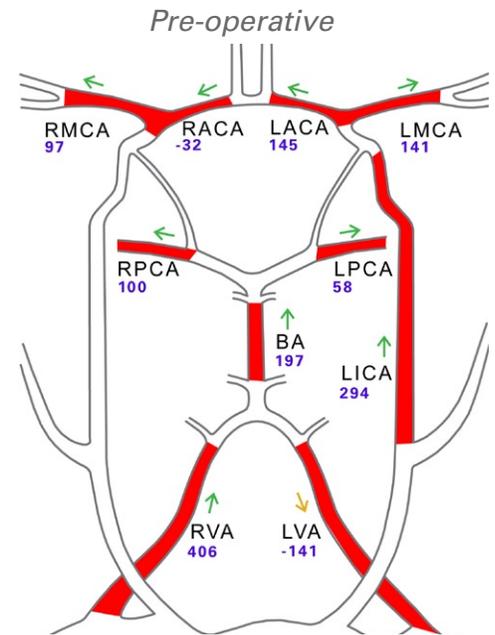
- ❖ **Increase right MCA flow**
- ❖ **Revascularize left subclavian artery, thus reversing subclavian steal and providing increased anterior circulation flow through the patent posterior communicating artery.**

Post Treatment

- ❖ After treatment there was improvement in right hemispheric perfusion, normalization of flow in the right vertebral artery and elimination of subclavian steal phenomenon with reversal of vertebral artery flow.

Post-operative NOVA documented a successful revascularization of the right hemisphere following angioplasty and stenting of a left subclavian occlusion. In the setting of a patent PCOM artery an extracranial interventional procedure allowed indirect revascularization of the intracranial anterior circulation.

nova™ Vessel Map



	PRE	POST	%change
BA	197	263	34%
RMCA	97	139	43%
RACA	-32	52	63%
LPCA	58	109	88%
RVA	406	190	-53%
LVA	-141	122	187%

Flow values in ml/min

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