

Background

A 67 year old female current smoker with relevant history of right carotid endarterectomy presented to the vascular clinic for follow-up of carotid ultrasound suggestive of over 70% stenosis of the right internal carotid artery (ICA). A CT angiogram of the neck was then obtained, demonstrating 80% stenosis of the right ICA with calcified plaque near its origin.

The patient was amenable to Transcarotid Artery Revascularization (TCAR), which would address the narrowing with a stent. The procedure was anticipated to be technically challenging due to her history of surgery involving the right carotid, which created scar tissue and augmentation of normal anatomy. At the time of her TCAR, the lesion did prove difficult to cross, but was eventually treated after utilizing a buddy wire system.

References

1. Burzotta F, Trani C, Mazzari MA, et al. Use of a second buddy wire during percutaneous coronary interventions: a simple solution for some challenging situations. *J Invasive Cardiol.* 2005;17(3):171-174.
2. Meerkin D. My buddy, my friend: focused force angioplasty using the buddy wire technique in an inadequately expanded stent. *Catheter Cardiovasc Interv.* 2005;65(4):513-515. doi:10.1002/ccd.20259.

Contact:

emily.rey@arnothealth.org;
sahejpreet.kaur@arnothealth.org;

Imaging



Figure 1

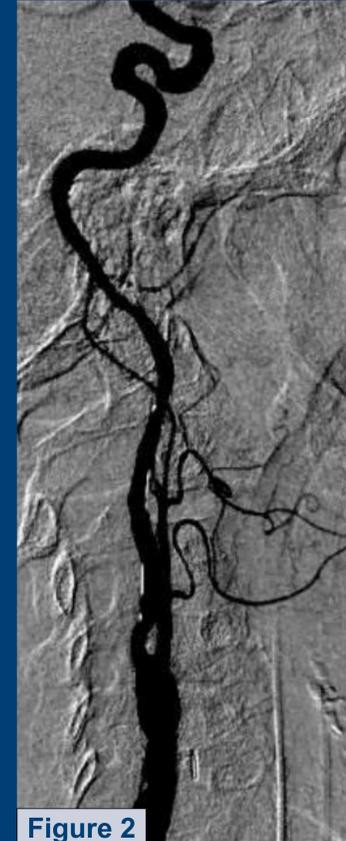


Figure 2



Figure 3

Intraoperative images demonstrate significant stenosis involving the right internal carotid artery (ICA) (**Figure 1**) warranting treatment. There was significant atherosclerotic plaque and narrowing at the right ICA, making it difficult to traverse with a wire. A buddy wire system was then employed (**Figure 2**) with subsequent access of the right ICA. The stenosis could then be treated with stenting (**Figure 3**) during the procedure with flow reversal providing neuroprotection.

Discussion

Transcarotid Artery Revascularization (TCAR) is a relatively new, minimally invasive procedure that provides an appealing alternative to carotid endarterectomy (CEA) and carotid artery stenting (CAS) in resolving ICA lesions such as thrombosis or pseudoaneurysms. The aim of TCAR is to facilitate stenting of the ICA while implementing a novel neuroprotection technique. This technique temporarily reroutes ICA blood flow in a "reverse direction" to the femoral vein to prevent distal embolization, thus achieving neuroprotection. TCAR involves two access points for micropuncture wires and sheaths: an arterial access point in the CCA near the bifurcation, proximal to the ICA lesion; and a venous access point in the femoral vein. The sheaths are connected to a flow controller, which establishes reverse flow. Once reverse flow is established, the carotid stent can be threaded into the ICA lesion through the arterial access point.

Using a second 0.014 inch coronary guidewire in addition to a wire already in place, can be useful in establishing access within complex lesions. This is known as a "buddy" wire technique. The placement of a second wire aids in crossing vessel narrowing or tortuosity by providing additional stability and steering.