

## A transradial approach for carotid artery stenting

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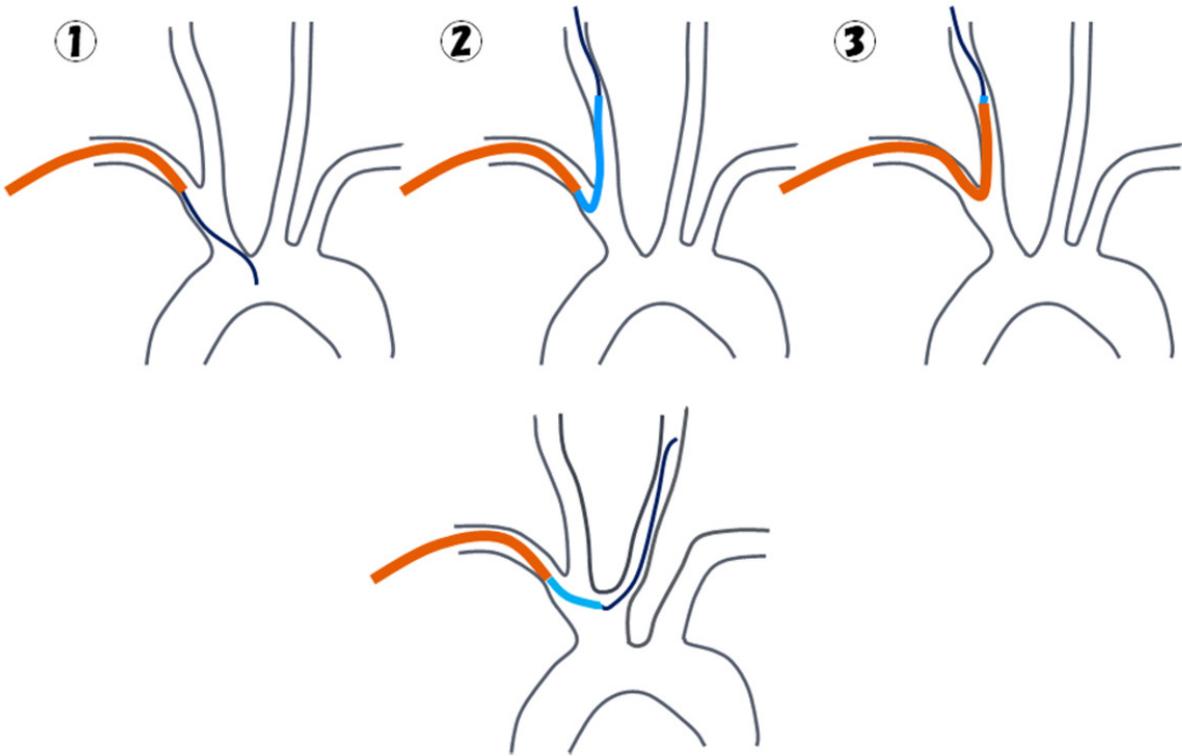
## Purpose

A transfemoral approach is usually used for carotid artery stenting (CAS), but postoperative bed rest is painful to the patient. A transbrachial approach can result in compression after surgery, leading to pain in the forearm or sensory loss, and can also result in median nerve palsy due to subcutaneous bleeding. In order to reduce the burden on the patient and mitigate the potential for complications, transradial carotid artery stenting (TR-CAS) is performed at this hospital, as reported here.

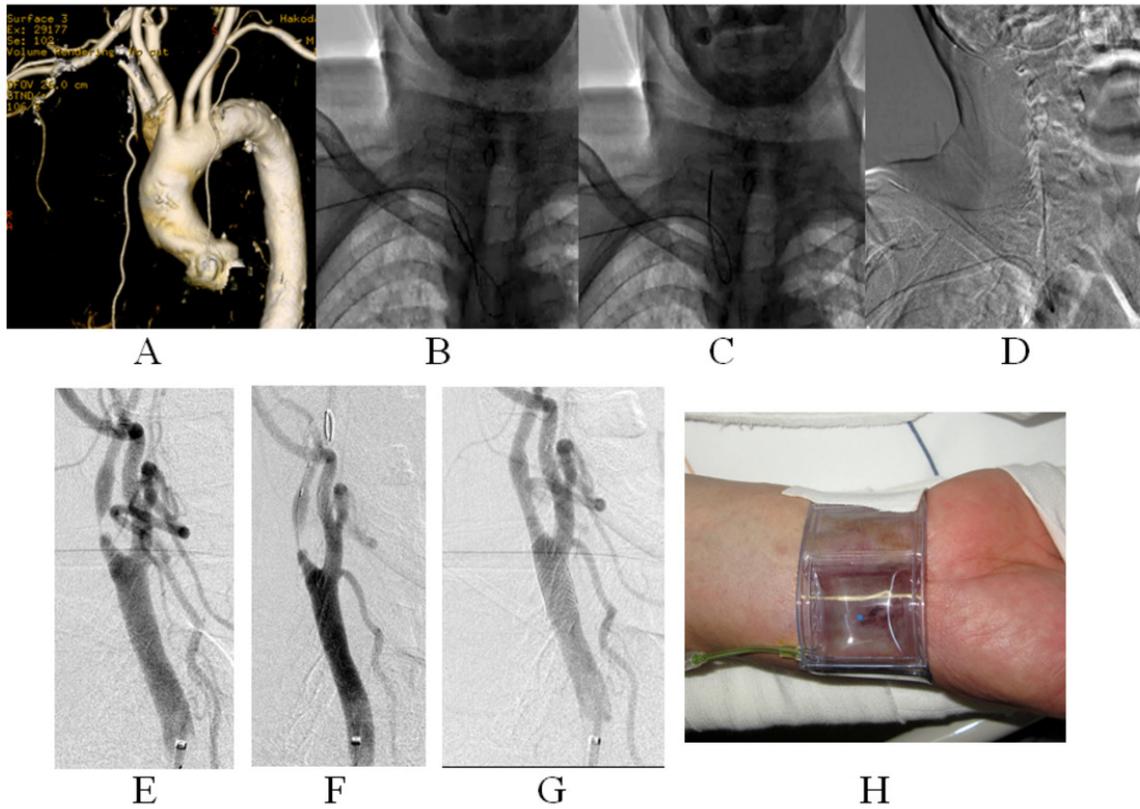
## Methods and Materials

TR-CAS was performed on 20 lesions in 19 patients from August 2010-December 2011. Patients consisted of 4 females and 15 males with a mean age of 69.9 years (59-83 years of age). Of the patients, 14 were symptomatic while 5 were asymptomatic. The right carotid artery was stented in 17 patients and the left was stented in 3. Preoperatively, carotid ultrasound and MR black-blood images were used to evaluate plaques and 3D-CT angiography from the carotid artery to the aorta and down to the iliac artery was used to evaluate access routes; these examinations were performed when deemed safe. At least 5 days before surgery, patients began taking 2 antiplatelet drugs. A guiding sheath was placed in the common carotid artery (Fig1). After systemic heparinization, filter or balloon protection was also used to prevent distal embolization. After predilatation, the stent was placed and postdilatation was performed as necessary. A compression device for the radial artery was used to control bleeding. We shows a representative case of right carotid artery stenosis (Fig.2).

**Images for this section:**



**Fig. 1:** Upper: Choose carotid artery with 0.035 half-stiff guidewire and inner catheter. Advance 5F or 6F guiding sheath (Shuttlesheath®) to carotid artery. Lower: Left carotid artery of bovine arch variant.

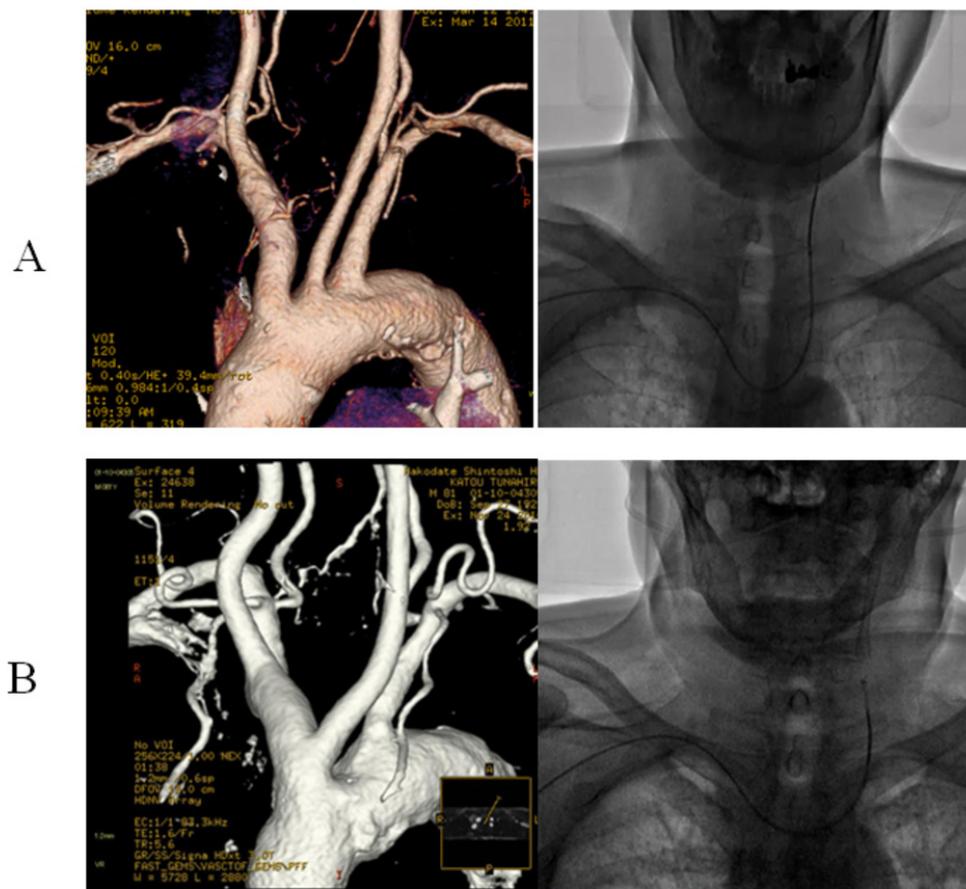


**Fig. 2:** 67 M Right cervical internal carotid artery stenosis A:Aortic arch B,C,D:Guiding sheath was placed in the common carotid artery. E,F,G:Carotid Wallstent was placed with FilterWire EZ. H:Compression device for the radial artery was used.

## Results

Stents were placed without complications in all patients. Cerebral infarction was noted in 1 patient and subcutaneous bleeding in the forearm was noted in another. Postoperatively, patients were able to assume a seated position and were able to eat with their right hands; problems with the puncture site were not noted. Insertion of the guiding sheath into the left carotid artery was readily done with a stiff guide wire and inner catheter (Fig.3). Caution was required since protracted radial artery puncture could lead to vasospasms, the guide wire could be misdirected into small branches, and patients could have anatomical variations such as absence of the ulnar artery or the presence of an ulnar loop (Fig.4).

Images for this section:



**Fig. 3:** Illustrative cases of left carotid artery stenosis A:Normal branching B:Bovine arch variant



A

B

C

**Fig. 4:** A:Vasospasms of radial artery due to protracted punctur B:Ulnar loop C:Absence of the ulnar artery

## Conclusion

TR-CAS is not a particularly difficult procedure for an interventional neuroradiologist and is a way to help lessen the burden on the patient and reduce complications.

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