

# Endovascular revascularization

Endovascular [revascularization](#) is a technique to clear blockages in the arteries and remove the plaque that is causing decreased blood flow.

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[Endovascular revascularization](#) of a stenotic lesion requires appropriate [stent](#) positioning. In particular, [stenting](#) of the [common carotid artery](#) (CCA) ostium makes it difficult to avoid [proptosis](#) into the [aorta](#). Furthermore, the guiding catheter may become unstable during the stenting because of its position under the aortic arch. To resolve these problems, Terakado et al. performed antegrade stenting for a patient with a symptomatic stenotic left CCA ostium that was treated by lifting a balloon-guiding catheter with a gooseneck snare. A patient was a 74-year-old man who presented to the hospital with main complaints of right [hemiparesis](#) and [motor aphasia](#). A left cerebral [infarction](#) due to severe stenotic left CCA ostium was diagnosed. A CT perfusion study showed decreased cerebral blood flow in the left hemisphere. Stenting of the stenotic left CCA ostium was performed using an antegrade approach. A balloon-guiding catheter positioned under the [aortic arch](#) was inflated and lifted from the right [brachiocephalic artery](#) using a gooseneck snare. The guiding catheter was stabilized during stenting. This method is highly effective for stenting CCA ostium <sup>1)</sup>

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Hasan et al., propose a radiographic [classification](#) of [Chronically occluded internal carotid artery](#) (COICA) that can be used as a guide to determine the technical success and safety of [endovascular revascularization](#) for symptomatic COICA and to assess the changes in systemic [blood pressure](#) following successful [revascularization](#).

The radiographic images of 100 consecutive subjects with COICA were analyzed. A new classification of COICA was proposed based on the morphology, location of occlusion, and presence or absence of reconstitution of the distal [ICA](#). The classification was used to predict successful [revascularization](#) in 32 symptomatic COICAs in 31 patients, five of whom were female (5/31 [16.13%]). Patients were included in the study if they had a COICA with ischemic symptoms refractory to medical therapy. [Carotid artery occlusion](#) was defined as 100% cross-sectional occlusion of the vessel lumen as documented on CTA or MRA and confirmed by digital subtraction angiography.

Four types (A-D) of radiographic COICA were identified. Types A and B were more amenable to safe revascularization than types C and D. Recanalization was successful at a rate of 68.75% (22/32 COICAs; type A: 8/8; type B: 8/8; type C: 4/8; type D: 2/8). The perioperative complication rate was 18.75% (6/32; type A: 0/8 [0%]; type B: 1/8 [12.50%]; type C: 3/8 [37.50%], type D: 2/8 [25.00%]). None of these complications led to permanent morbidity or death. Twenty (64.52%) of 31 subjects had improvement in their symptoms at the 2-6 months' follow-up. A statistically significant decrease in [systolic blood pressure](#) (SBP) was noted in 17/21 (80.95%) patients who had successful revascularization, which persisted on follow-up ( $p = 0.0001$ ). The remaining 10 subjects in whom revascularization failed had no significant changes in SBP ( $p = 0.73$ ).

The pilot study suggested that the proposed classification of COICA may be useful as an adjunctive guide to determine the technical feasibility and safety of [revascularization](#) for symptomatic COICA using endovascular techniques. Additionally, successful revascularization may lead to a significant decrease in SBP postprocedure. A Phase 2b trial in larger cohorts to assess the efficacy of [endovascular revascularization](#) using this COICA classification is warranted <sup>2)</sup>.

1)

Terakado T, Matumaru Y, Ishikawa E. Stenting of the Common Carotid Artery Ostium: Balloon Catheter Lifting-Up Technique With a Gooseneck Snare. Vasc Endovascular Surg. 2023 May 22:15385744231178179. doi: 10.1177/15385744231178179. Epub ahead of print. PMID: 37212169.

2)

Hasan D, Zanaty M, Starke RM, Atallah E, Chalouhi N, Jabbour P, Singla A, Guerrero WR, Nakagawa D, Samaniego EA, Mbabuike N, Tawk RG, Siddiqui AH, Levy EI, Novakovic RL, White J, Schirmer CM, Brott TG, Shallwani H, Hopkins LN. Feasibility, safety, and changes in systolic blood pressure associated with endovascular revascularization of symptomatic and chronically occluded cervical internal carotid artery using a newly suggested radiographic classification of chronically occluded cervical internal carotid artery: pilot study. J Neurosurg. 2018 May 18:1-10. doi: 10.3171/2018.1.JNS172858. [Epub ahead of print] PubMed PMID: 29775153.

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