

Supplementary Methods

Inclusion criteria

Patients who suffered an acute ischemic stroke or transient ischemic attack within 1 month, attributed to high-grade (60%–99%), atherosclerotic M1 middle cerebral artery (MCA-M1) stenosis confirmed through three-dimensional rotational angiography (3DRA) between May 2007 and July 2022, were recruited. The 3DRA was performed as clinically indicated; for instance, 3DRA could be performed for a diagnostic purpose and/or guiding a decision for angioplasty/stenting treatment, when a patient with previously documented high-grade stenosis in noninvasive neurovascular imaging exams suffered stroke relapse despite medical treatment. The 3DRA could also be performed when a patient with documented high-grade stenosis in noninvasive neurovascular imaging exams was recruited to a clinical trial on stenting versus medical treatment for high-grade, symptomatic intracranial atherosclerotic stenosis (ChiCTR-TRC-06000689).

The stroke etiology and relevance to the MCA-M1 lesion were determined by neurologists, based on clinical syndromes, imaging features, and concurrent cardiovascular risk factors.

Exclusion criteria

Exclusion criteria included (1) probable non-atherosclerotic MCA-M1 stenosis, e.g., moyamoya disease, vasculitis, or dissection; (2) evidence of possible cardioembolism, e.g., atrial fibrillation, valvular heart disease, or recent myocardial infarction; (3) concurrent >50% stenosis of ipsilateral common carotid artery and extracranial internal carotid artery; and (4) an ipsilateral hypoplastic anterior cerebral artery.

Measurement of the MCA–anterior cerebral artery angle

The MCA–anterior cerebral artery (ACA) angle was defined as the angle between the centerlines of proximal MCA and ACA, measured in the plane when the centerlines of terminal internal carotid artery (ICA) and proximal MCA and ACA had the smallest angle deviations from this plane among all planes. In ideal situations, terminal ICA and proximal MCA and ACA segments could be in this same plane, but in most cases, these arterial segments are not completely straight.