Common Carotid Artery Stenosis

- Association between individuals with unilateral and bilateral carotid artery calcifications and periodontal disease: a cross-sectional study
- Eagle Syndrome as a Delayed Vascular Complication: Carotid Stent Deformation After Stenting for High Cervical Stenosis
- Effects of iterative metal artifact reduction techniques on diagnostic performance in patients with dental artifacts on carotid computed tomography angiography
- The impact of stenosis treatment on the hemodynamic crosstalk between carotid arteries
- Eosinophil counts predict 3-year risk of major adverse cardiovascular and cerebrovascular events in carotid artery stenosis patients
- Effect of carotid artery stenosis on collateral flow status in patients with acute ischemic stroke after mechanical thrombectomy
- Clinical features, radiological findings, and outcome in patients with symptomatic mild carotid stenosis: a MUSIC study
- Application of High-Resolution Magnetic Resonance Vessel Wall Imaging in Childhood Primary Angiitis of the Central Nervous System

Common carotid artery stenosis (CCAS) refers to the narrowing of the common carotid artery (CCA), usually due to atherosclerosis. It can impair cerebral perfusion and increase the risk of ischemic stroke, particularly via embolization to the internal carotid artery or cerebral vessels.

Classification of Common Carotid Artery Stenosis

Classification of stenosis is typically based on the percentage of luminal narrowing, often estimated by duplex ultrasound or angiographic imaging. While most guidelines focus on internal carotid stenosis, the same grading principles are applied to the common carotid artery.

Degree of Stenosis	Luminal Narrowing	Hemodynamic Impact	Clinical Relevance
Normal	< 20%	None	Physiologic
Mild Common Carotid Artery Stenosis	20–49%	Minimal	Often asymptomatic
Moderate	50–69%	Flow turbulence	May be symptomatic
Severe	70–99%	Critically reduced flow	High risk of stroke
Occlusion	100%	No flow	Established collateral circulation or acute ischemia

Measurement Criteria

- **Duplex Ultrasound**: Peak systolic and end-diastolic velocities compared to internal carotid artery.
- **CT/MR Angiography**: Percentage of narrowing calculated using the NASCET or ECST methods adapted for CCA.
- **DSA (Digital Subtraction Angiography)**: Gold standard, used for surgical planning.

Important Notes

- Unlike internal carotid stenosis, common carotid stenosis rarely causes symptoms directly unless it affects downstream flow.
- Classification guides decision-making in conjunction with symptoms and comorbidities.

Etiology

- Atherosclerosis (most common)
- Fibromuscular dysplasia
- Radiation-induced vasculopathy
- Arteritis (e.g., Takayasu, giant cell)
- Carotid artery dissection
- Post-traumatic or post-surgical changes

Clinical Presentation

- Often asymptomatic
- Transient ischemic attacks (TIAs)
- Amaurosis fugax
- Stroke
- Carotid bruit on physical examination

Diagnosis

- **Carotid Duplex Ultrasound** – first-line screening
- **CT Angiography (CTA)** or **MR Angiography (MRA)** – detailed evaluation
- **Digital Subtraction Angiography (DSA)** – gold standard, used selectively

Severity Classification

- Mild: < 50% stenosis
- Moderate: 50–69%
- Severe: ≥ 70%

Treatment

Medical Management

- Antiplatelet therapy (aspirin or clopidogrel)
- Statin therapy
- Blood pressure control

- Diabetes management
- Smoking cessation

Revascularization

- **Carotid Endarterectomy (CEA)**:
  - Symptomatic patients with ≥70% stenosis
  - Consider in 50–69% if symptomatic and low surgical risk
- **Carotid Artery Stenting (CAS)**:
  - For patients at high surgical risk

Prognosis

- Stroke risk correlates with degree of stenosis and symptomatology
- Optimized medical therapy significantly reduces long-term risk

See Also

- internal carotid artery stenosis
- carotid artery dissection
- subclavian steal syndrome