

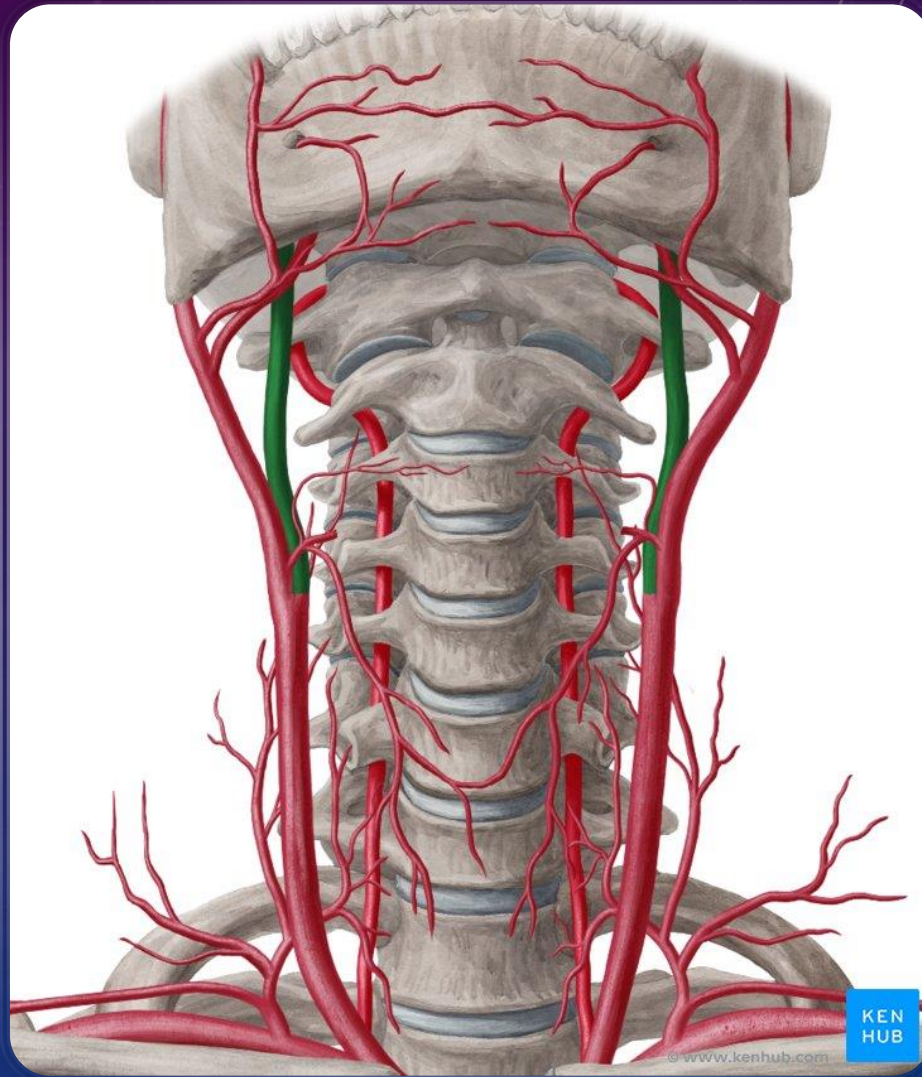
CURRENT THERAPIES FOR CAROTID ARTERY DISEASE

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MARYLAND VASCULAR
SPECIALISTS

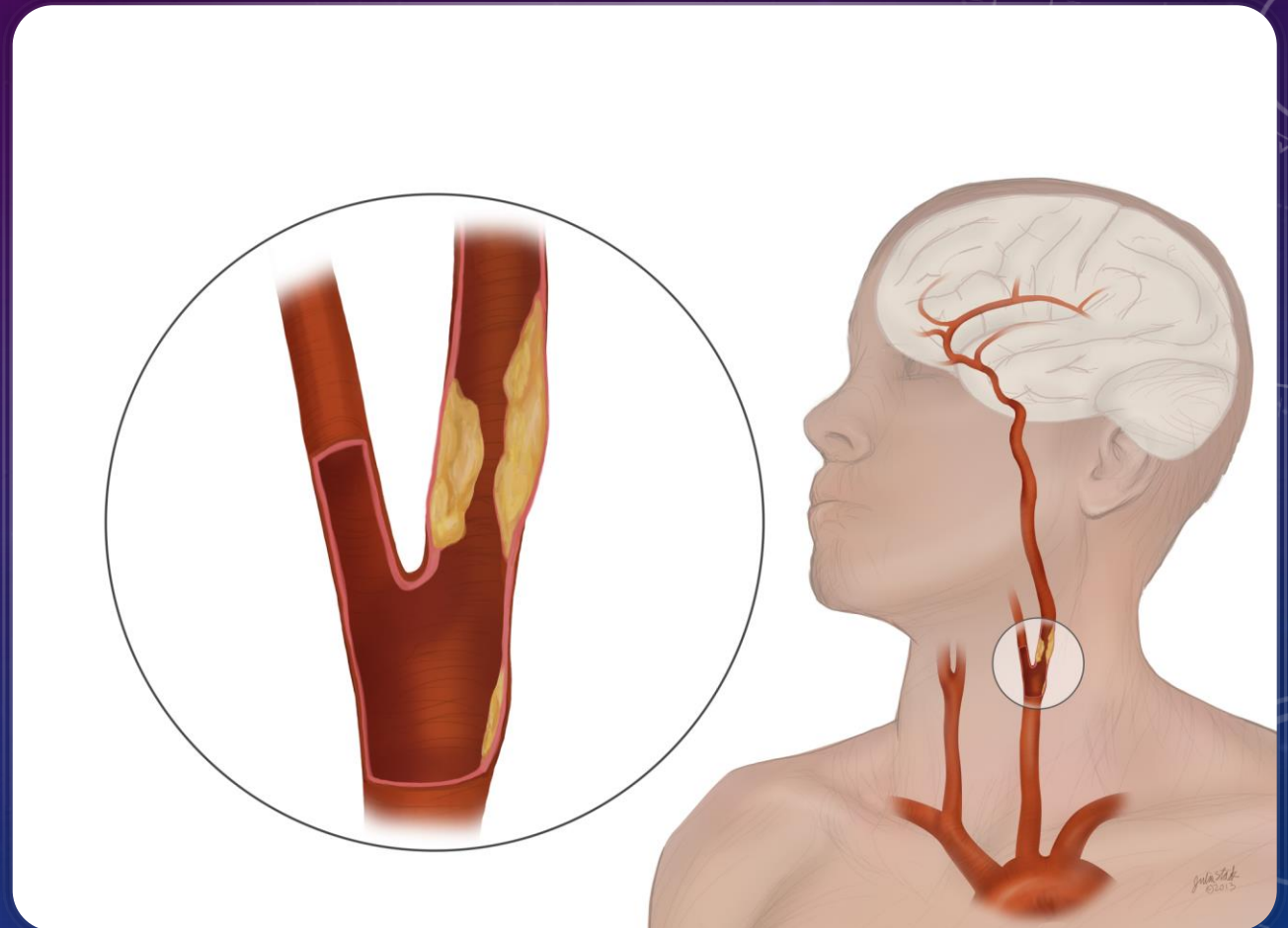
CAROTID ARTERIES

- Along with the smaller vertebral arteries, supply the brain with oxygenated blood from the heart



CAROTID ATHEROSCLEROSIS

- Atherosclerotic plaque can build up at the carotid bifurcation in the mid neck and become a source of emboli to the brain or thrombosis, causing a **stroke**
- Risk of stroke increases with the severity of narrowing (stenosis)
- If artery becomes 100 % occluded, the entire artery occludes to the base of brain and there is a 70% chance of having a stroke



SYMPTOMS OF CAROTID ARTERY DISEASE

- SYMPTOMS

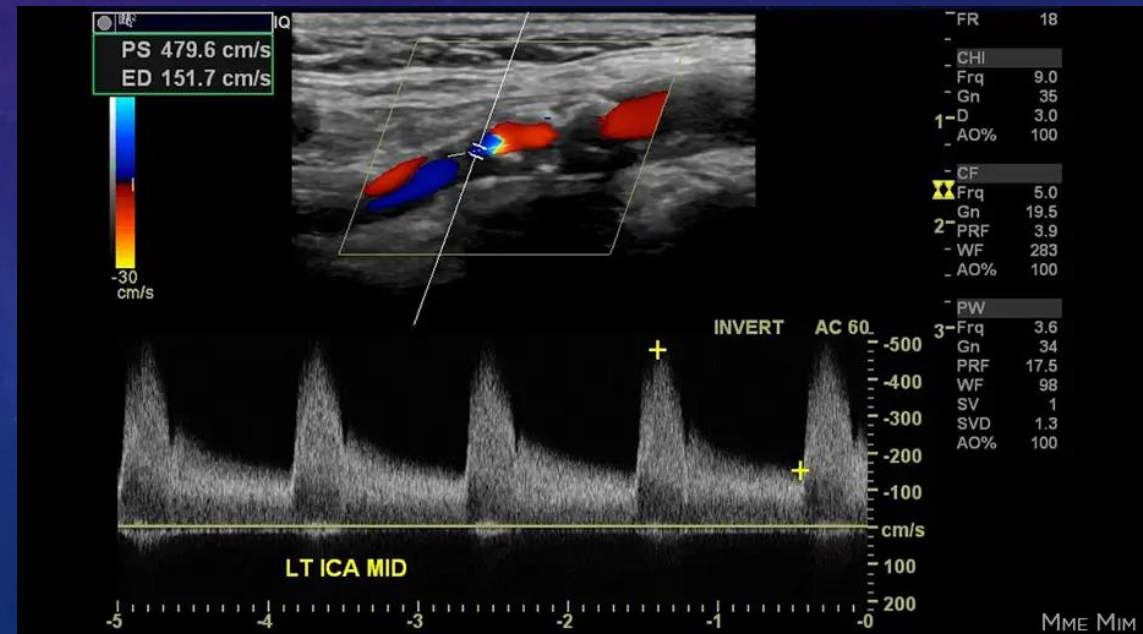
- Aphasia – inability to speak properly due to damage to speech center
 - Conscious, just unable to speak
- Paralysis or paresthesias
 - Weakness or numbness of opposite side of affected brain
- Amaurosis Fugax – temporary blindness of one eye due to emboli to the retina
 - "window shade in front of eye"

- TIA vs Stroke

- TIA – Transient Ischemic Attack
 - Symptoms last less than 24 hours, often just minutes
- Stroke
 - Symptoms last more than 24 hours, often permanent
 - Will see evidence of ischemic damage on CT or MRI imaging

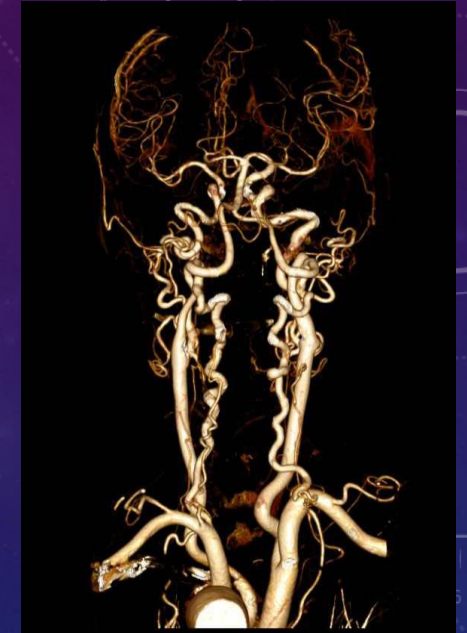
DIAGNOSING CAROTID ARTERY DISEASE

- CAROTID DUPLEX/ULTRASOUND
 - MAINSTAY OF DIAGNOSIS OF CAROTID DISEASE
 - NON-INVASIVE
 - MOST ACCURATE IN DETERMINING DEGREE OF STENOSIS
 - STUDY QUALITY IS DEPENDENT ON SONOGRAPHER



DIAGNOSING CAROTID ARTERY DISEASE

- CTA/MRA
 - GIVES COMPREHENSIVE IMAGING
 - REQUIRES IV CONTRAST
 - LESS ACCURATE IN DETERMINING EXACT DEGREE OF STENOSIS
 - STUDY QUALITY IS INDEPENDENT OF TECHNICIAN
 - CAN BE DIFFICULT TO TOLERATE



DIAGNOSING CAROTID ARTERY DISEASE

- CONVENTIONAL ANGIOGRAPHY
 - GOLD STANDARD OF IMAGING
 - REQUIRES IV CONTRAST
 - INVASIVE
 - CAN BE THERAPEUTIC, AS WELL



TREATMENT FOR CAROTID ARTERY DISEASE

- Medical Therapy – for all patients
 - Antiplatelet therapy – aspirin, Plavix, brilinta
 - Statin therapy
 - Stabilizes plaque and reduces risk of platelet aggregation/thrombosis

TREATMENT FOR CAROTID ARTERY DISEASE

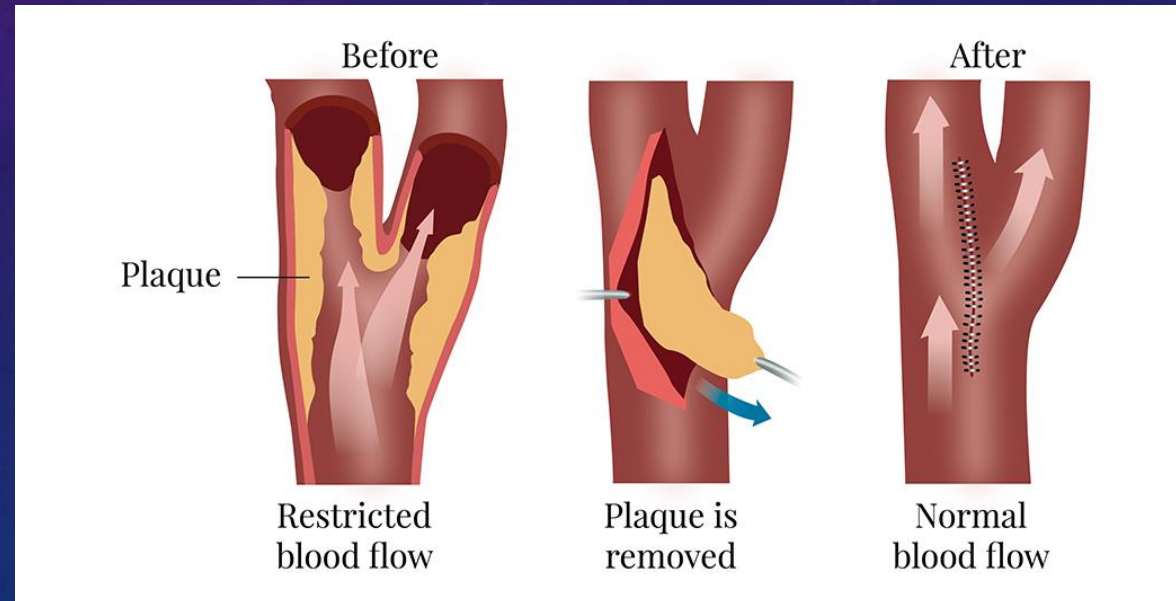
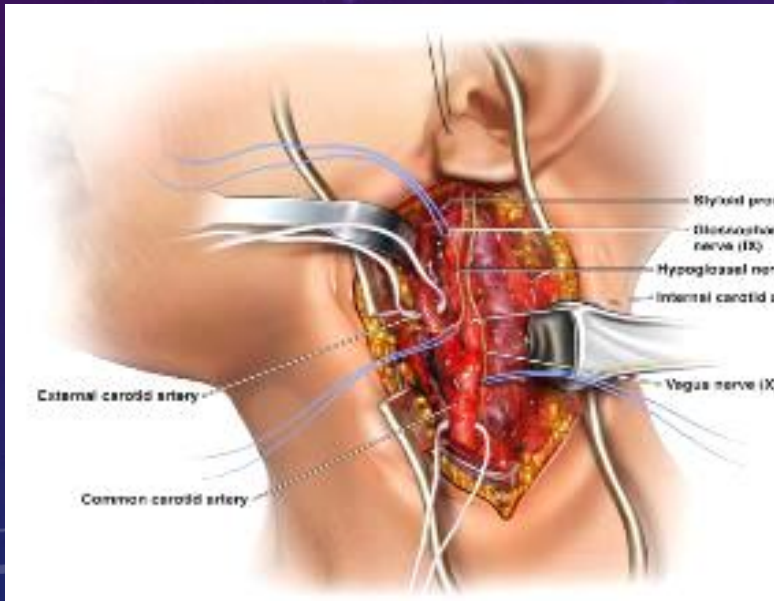
- Indications for Surgical Treatment
 - High grade (>80%) stenosis with or without symptoms
 - Severe (>60%) stenosis with symptoms

TREATMENT FOR CAROTID ARTERY DISEASE

- Surgical Treatment For Carotid Artery Disease
 - Carotid Endarterectomy
 - Carotid Stenting
 - Transfemoral
 - Transcarotid (TCAR)

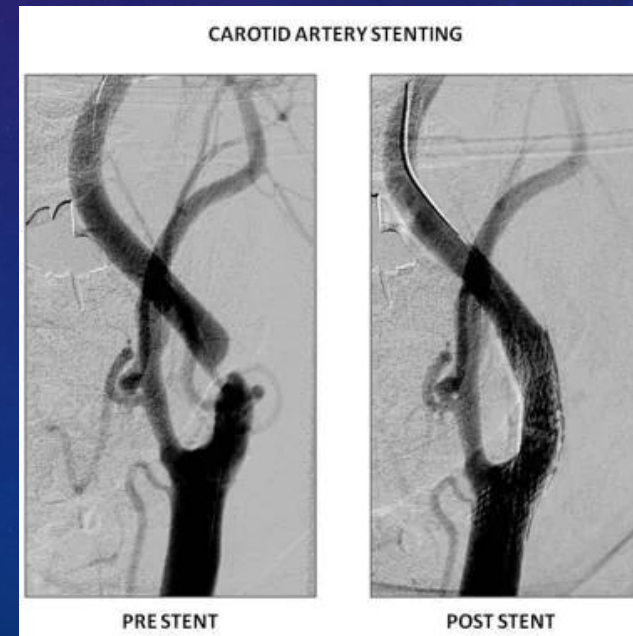
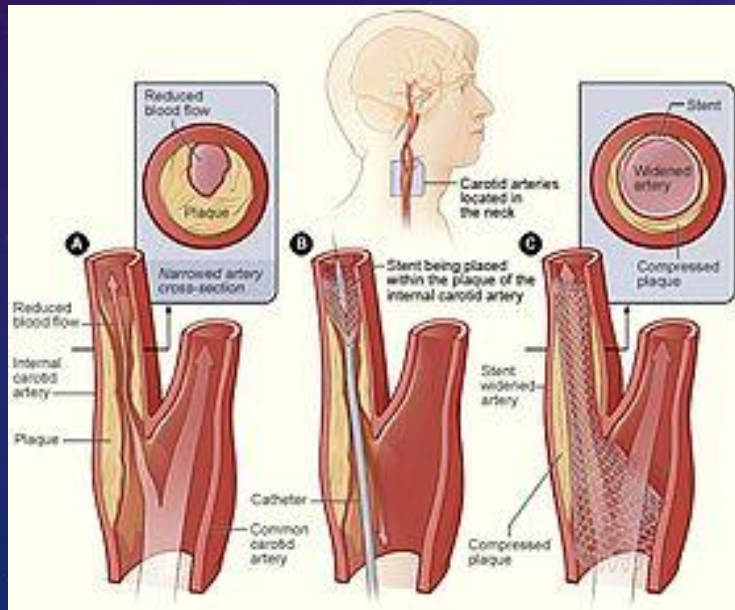
TREATMENT FOR CAROTID ARTERY DISEASE

- Carotid Endarterectomy
 - Standard surgical therapy for carotid artery disease for over 60 years
 - Plaque is removed from artery and artery is closed primarily or with a patch. Low stroke (1-2%) and complication (3-4%) rates



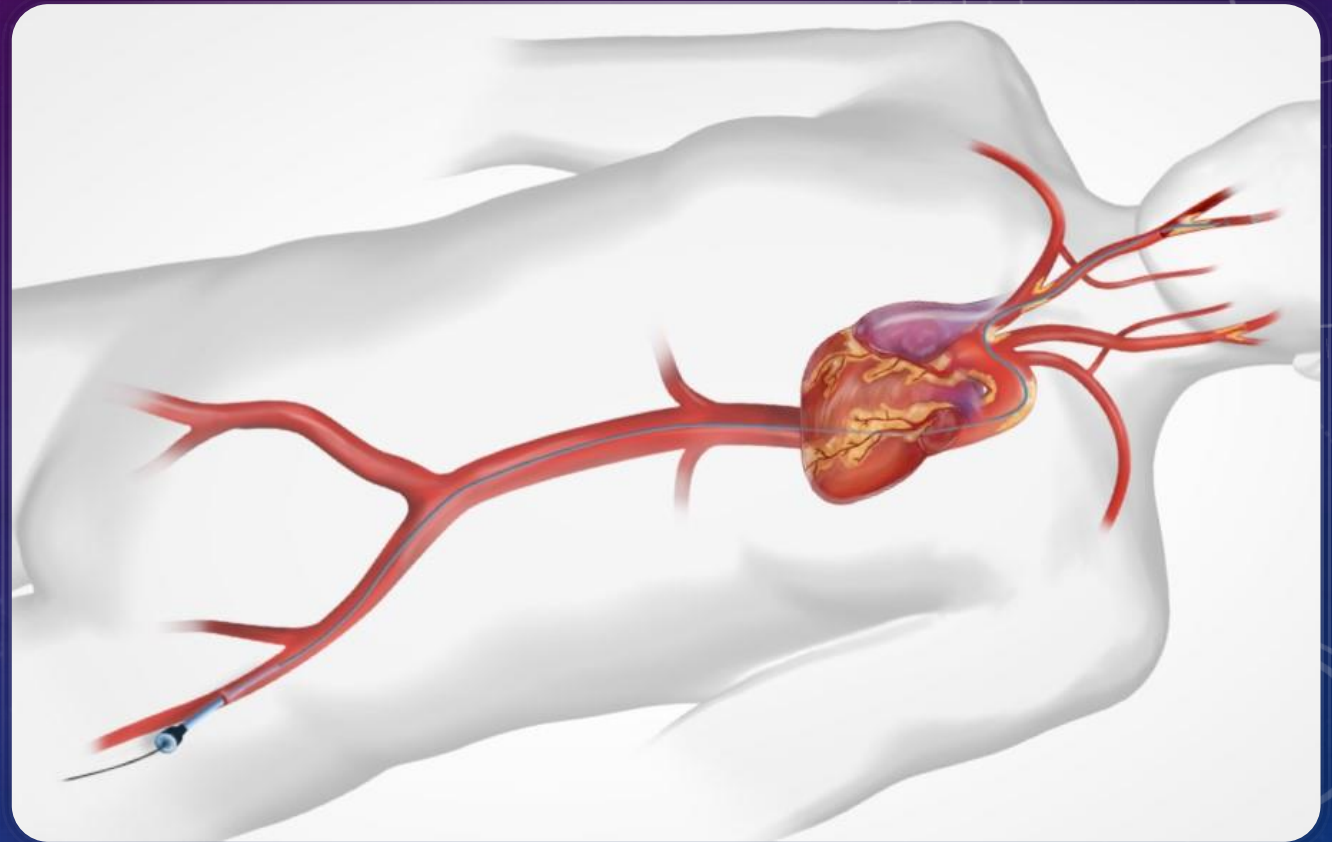
TREATMENT FOR CAROTID ARTERY DISEASE

- Carotid Stenting
 - Minimally invasive
 - Lower myocardial infarction and nerve injury risk
 - Durable patency – low restenosis rates
 - Good alternative for high risk surgical patients (reoperative cases, carotid bifurcation high in the neck, radiated necks)



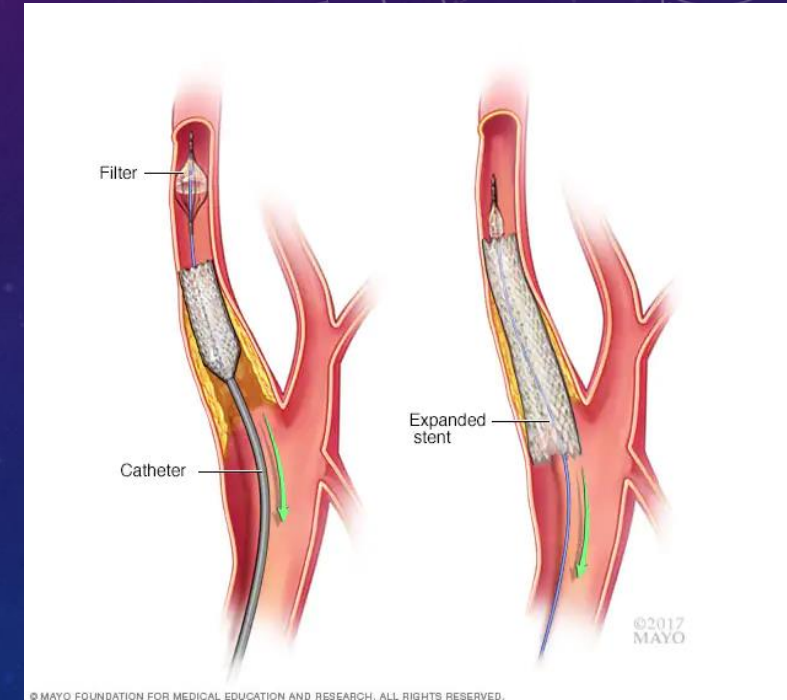
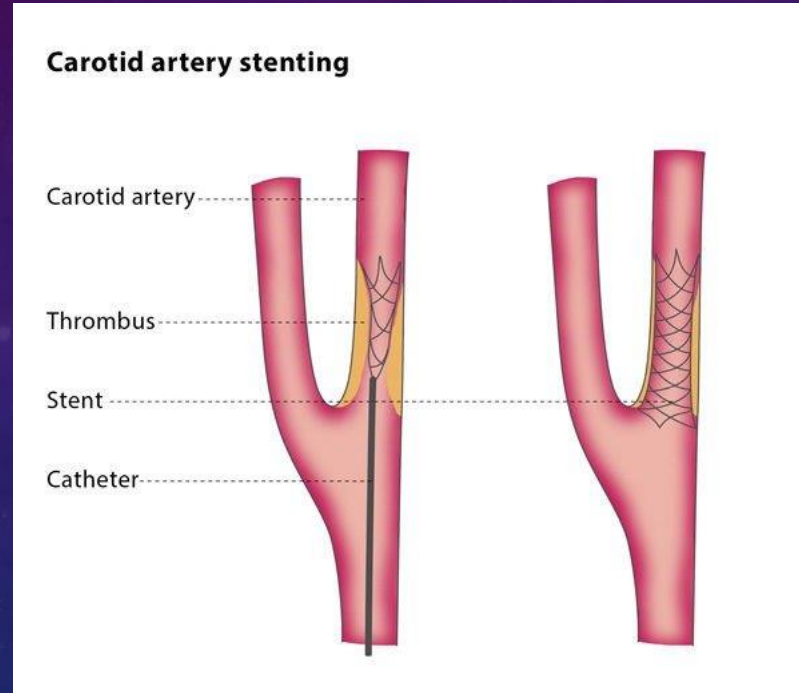
TREATMENT FOR CAROTID ARTERY DISEASE

- Carotid Stenting - transfemoral
 - Original method of carotid stenting
 - Long path from femoral artery to carotid artery - increases technical difficulty of procedure due to lost responsiveness of wires and catheters due to length and angulation



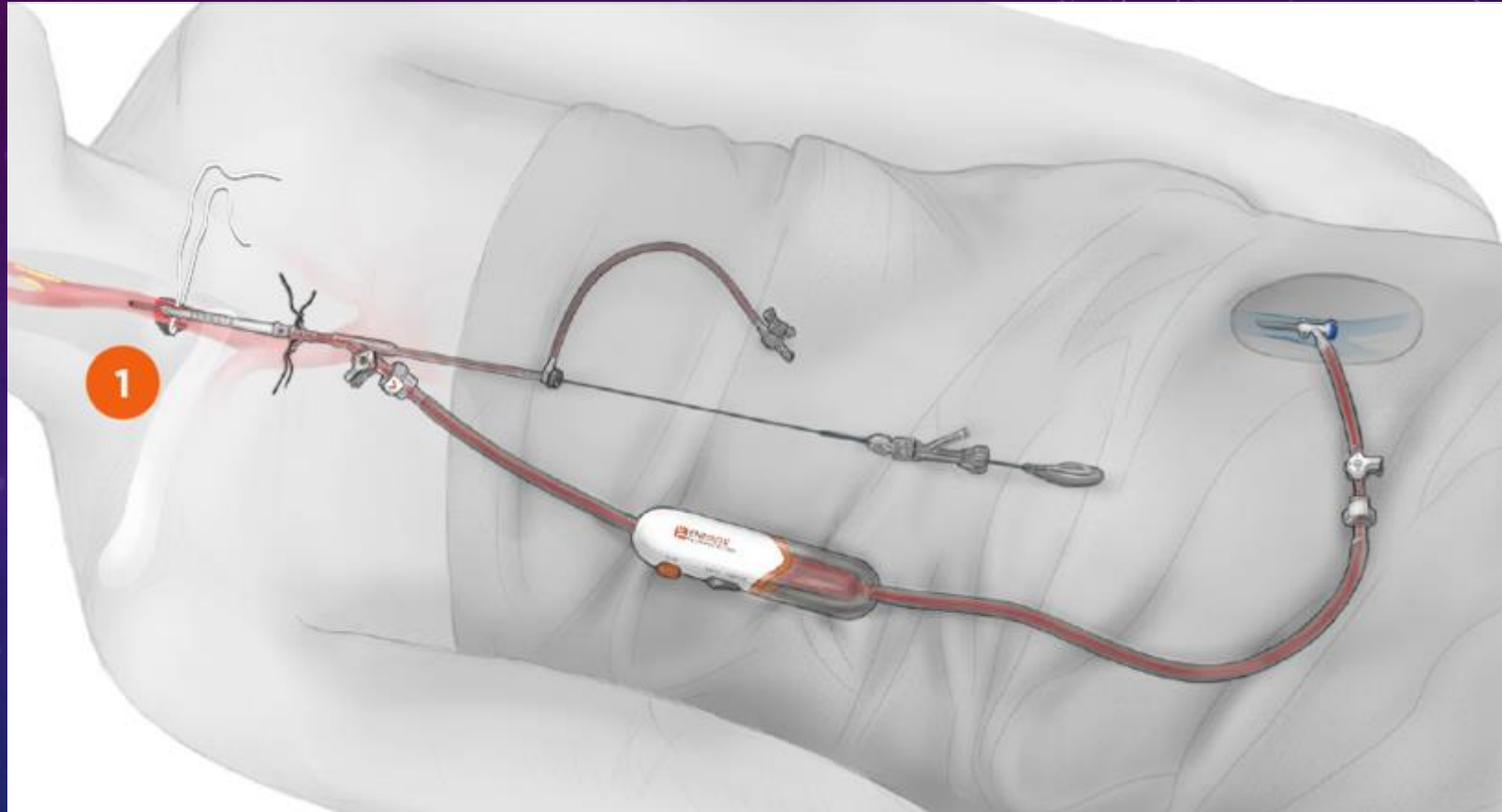
TREATMENT FOR CAROTID ARTERY DISEASE

- Carotid Stenting - transfemoral
 - Increased complication risk from emboli from aorta, as well as higher stroke risk during crossing of lesion with wire and placement of carotid stent
 - Filters developed to reduce cerebral emboli and stroke
 - Higher stroke (3X) risk and therefore higher long-term mortality than endarterectomy



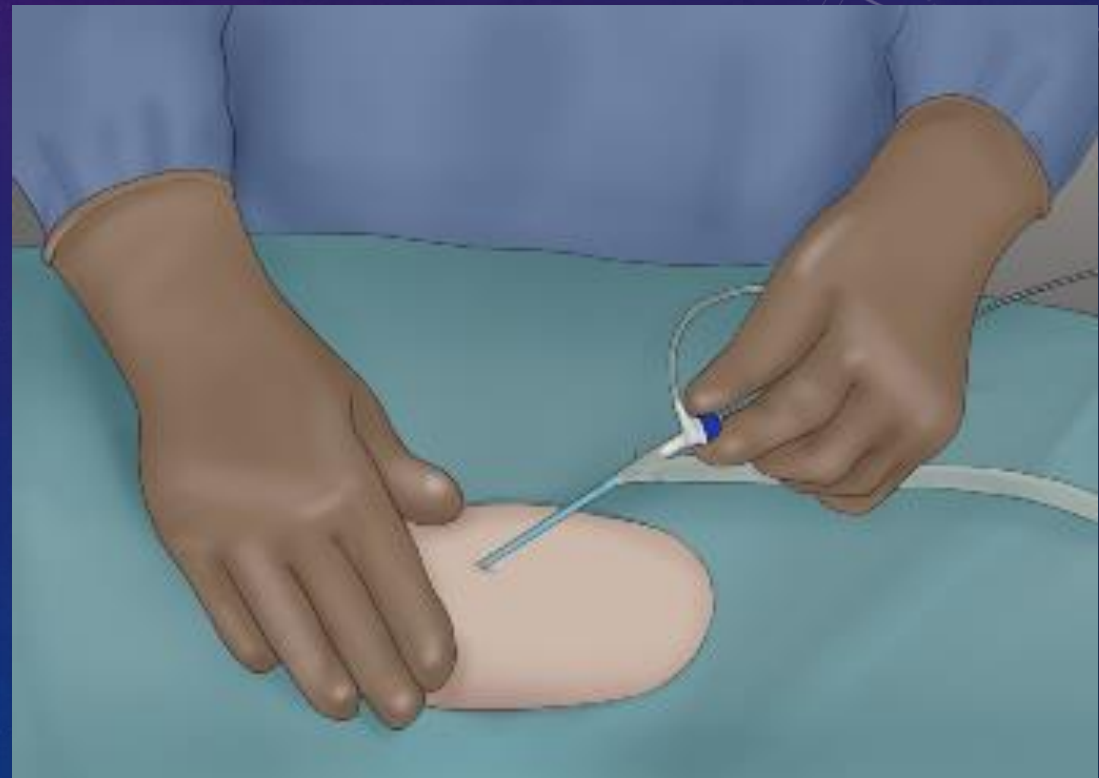
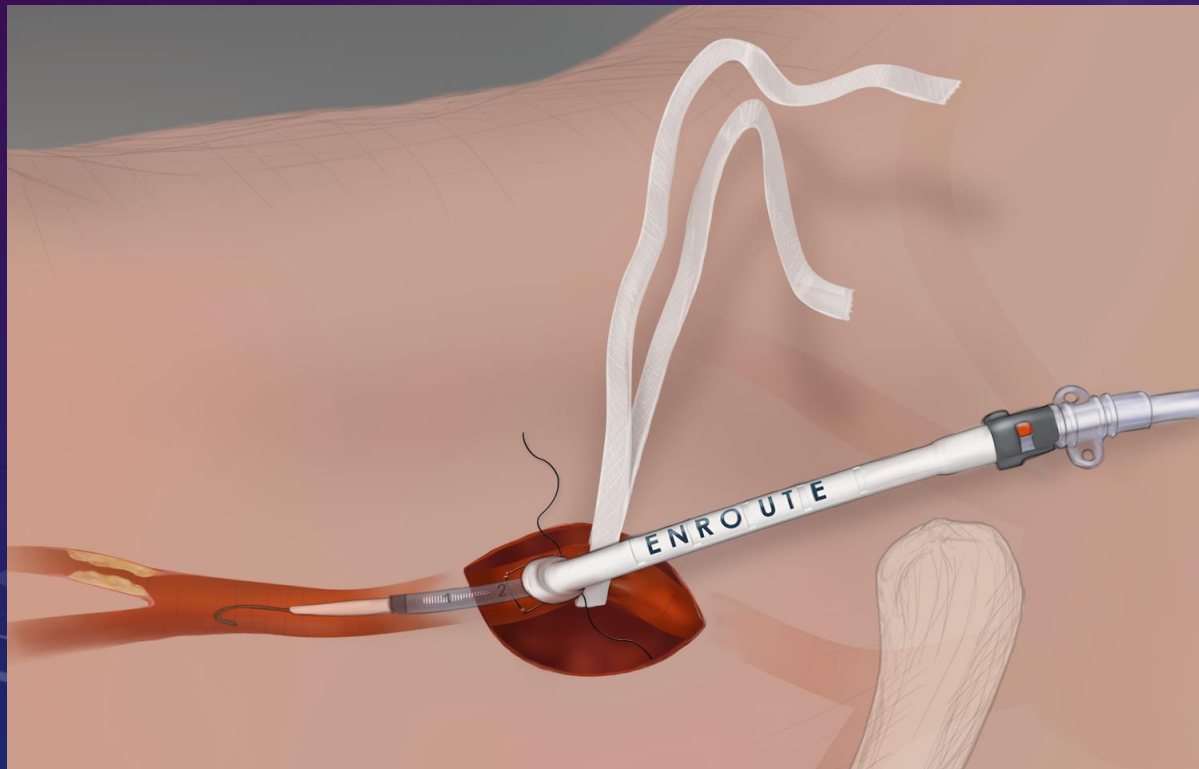
TREATMENT FOR CAROTID ARTERY DISEASE

- Carotid Stenting - TCAR
 - TransCarotid Arterial Revascularization
 - Hybrid surgical/stenting procedure
 - Carotid artery is directly accessed, avoiding arch and tortuosity issues
 - Flow is reversed, dramatically reducing risk of cerebral emboli
 - Must be able to take Dual Antiplatelet Therapy and Statins



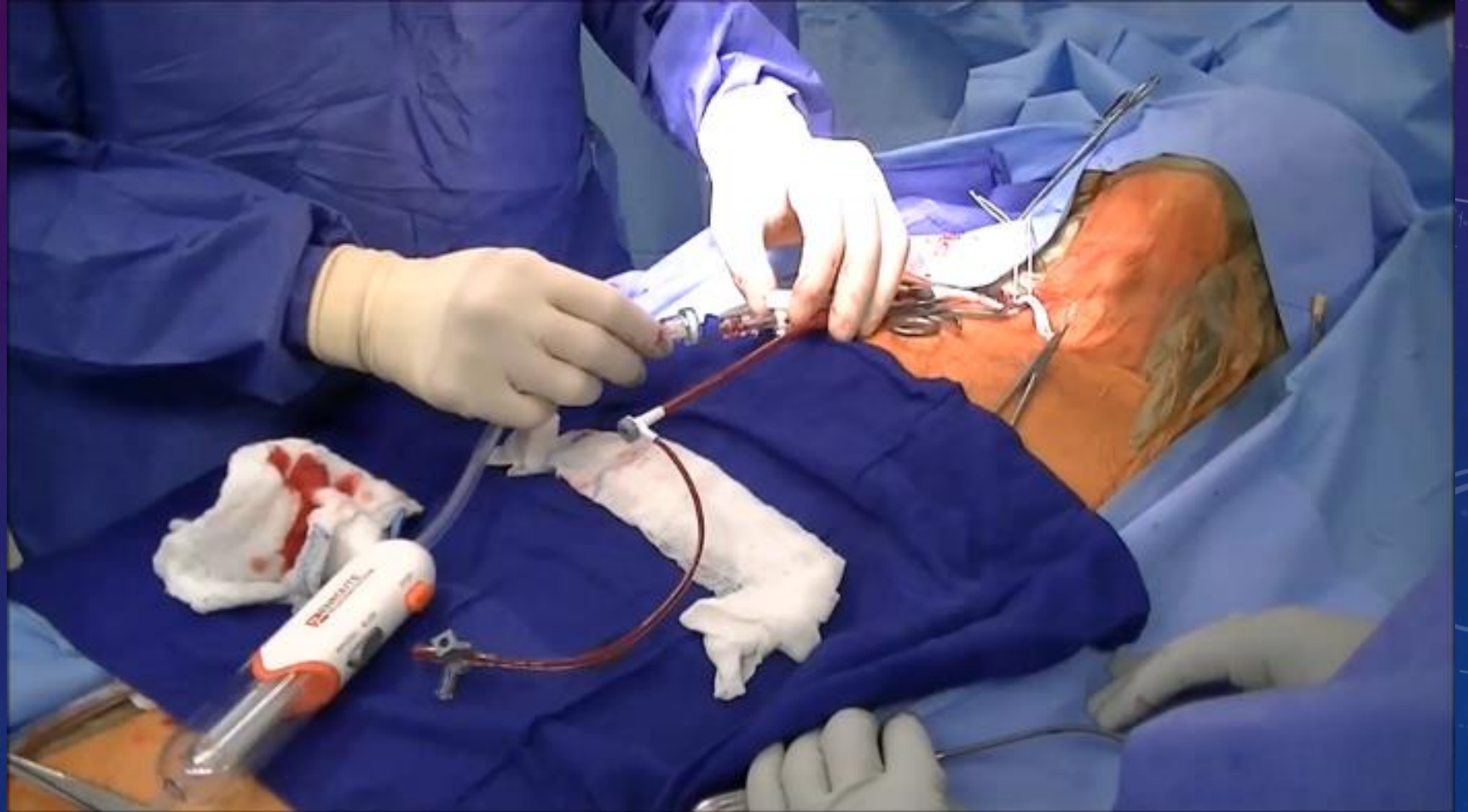
TREATMENT FOR CAROTID ARTERY DISEASE

- Carotid Stenting - TCAR



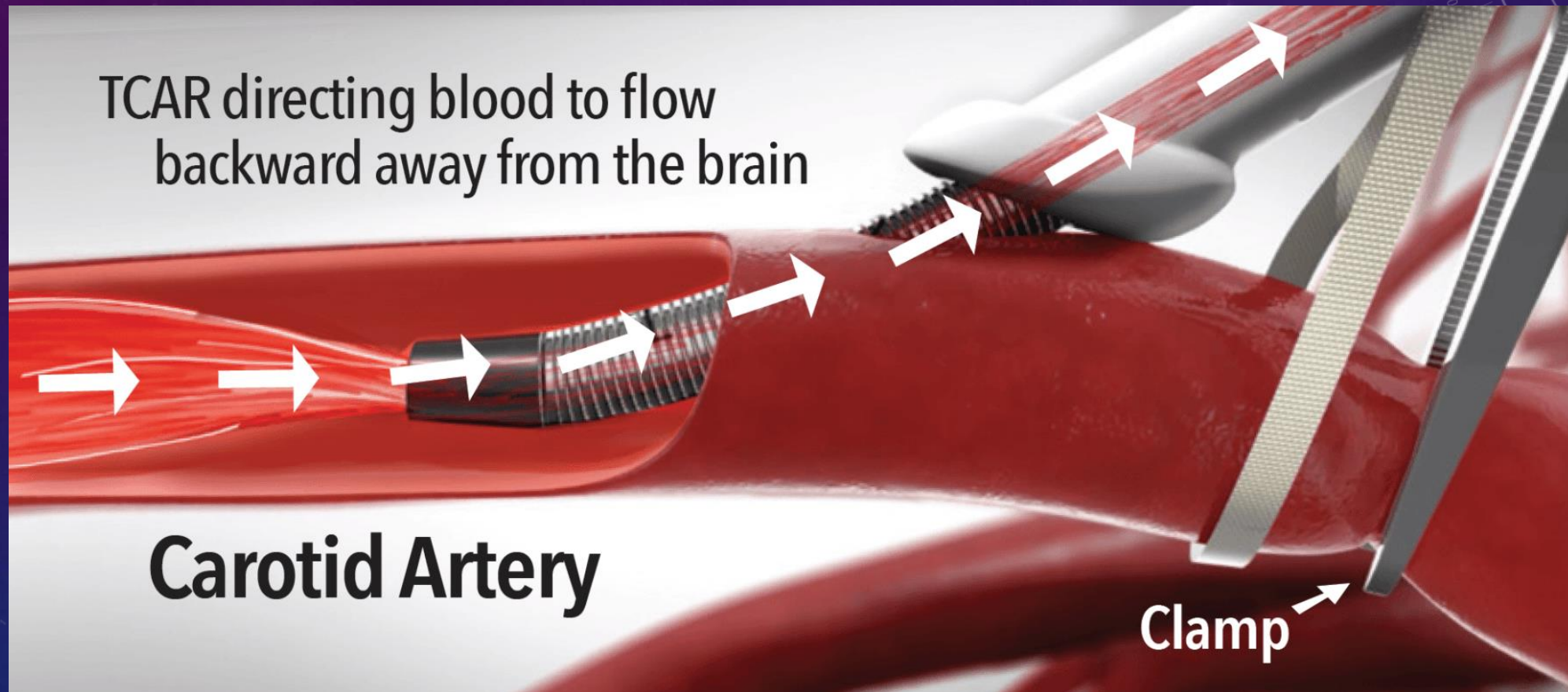
TREATMENT FOR CAROTID ARTERY DISEASE

- Carotid Stenting - TCAR



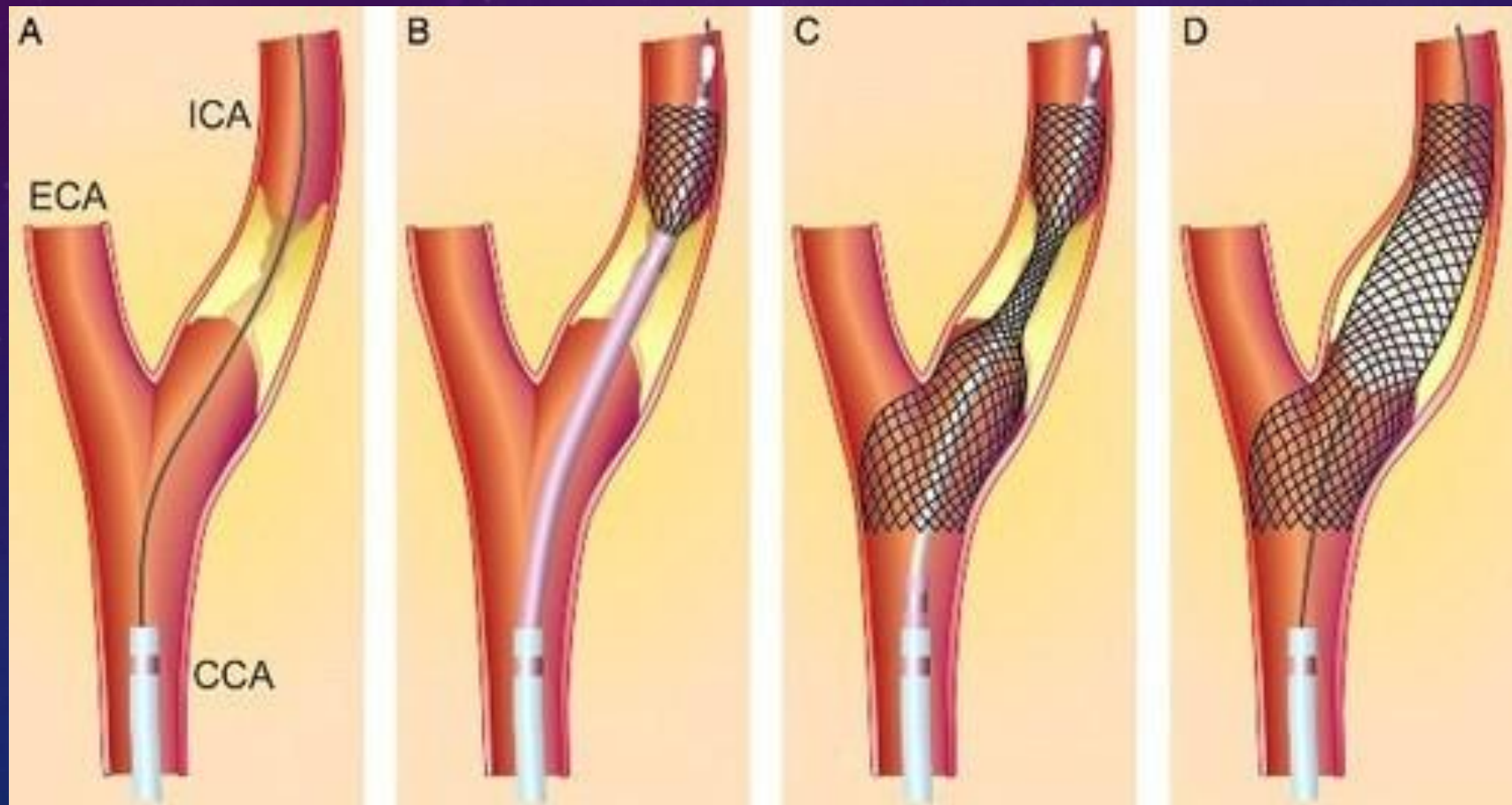
TREATMENT FOR CAROTID ARTERY DISEASE

- Carotid Stenting - TCAR



TREATMENT FOR CAROTID ARTERY DISEASE

- Carotid Stenting - TCAR



TREATMENT FOR CAROTID ARTERY DISEASE

- Carotid Endarterectomy vs Transfemoral Stenting vs. TransCarotid Stenting
 - Stroke Risk
 - Carotid Endarterectomy – 2.3%
 - Transfemoral Stenting – 4.1%
 - TCAR – 1.4%
 - Myocardial Infarction Risk
 - Carotid Endarterectomy – 2.3%
 - Transfemoral Stenting/TCAR – 0.7%

CURRENT THERAPIES FOR CAROTID ARTERY DISEASE

- TREATMENT GOAL IS THE **PREVENTION OF STROKE**
- SEVERAL TREATMENT OPTIONS AVAILABLE – BOTH MEDICAL AND SURGICAL
- EACH CASE MUST BE INDIVIDUALLY EVALUATED TO DETERMINE APPROPRIATE INTERVENTION, IF ANY