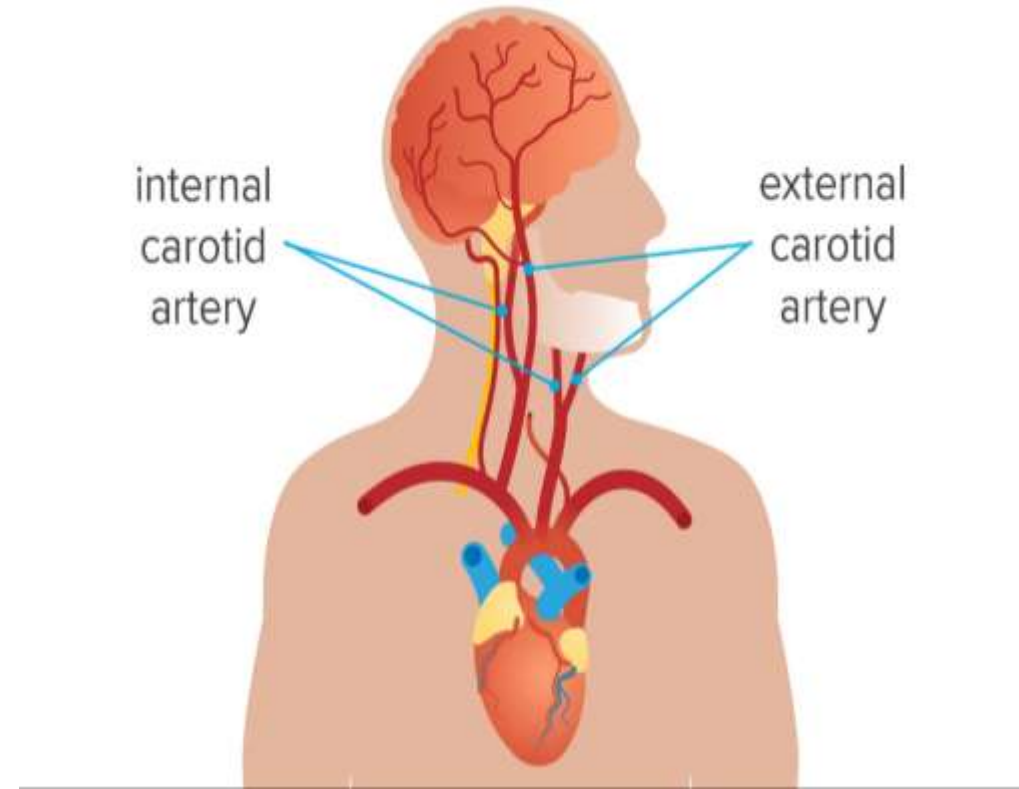
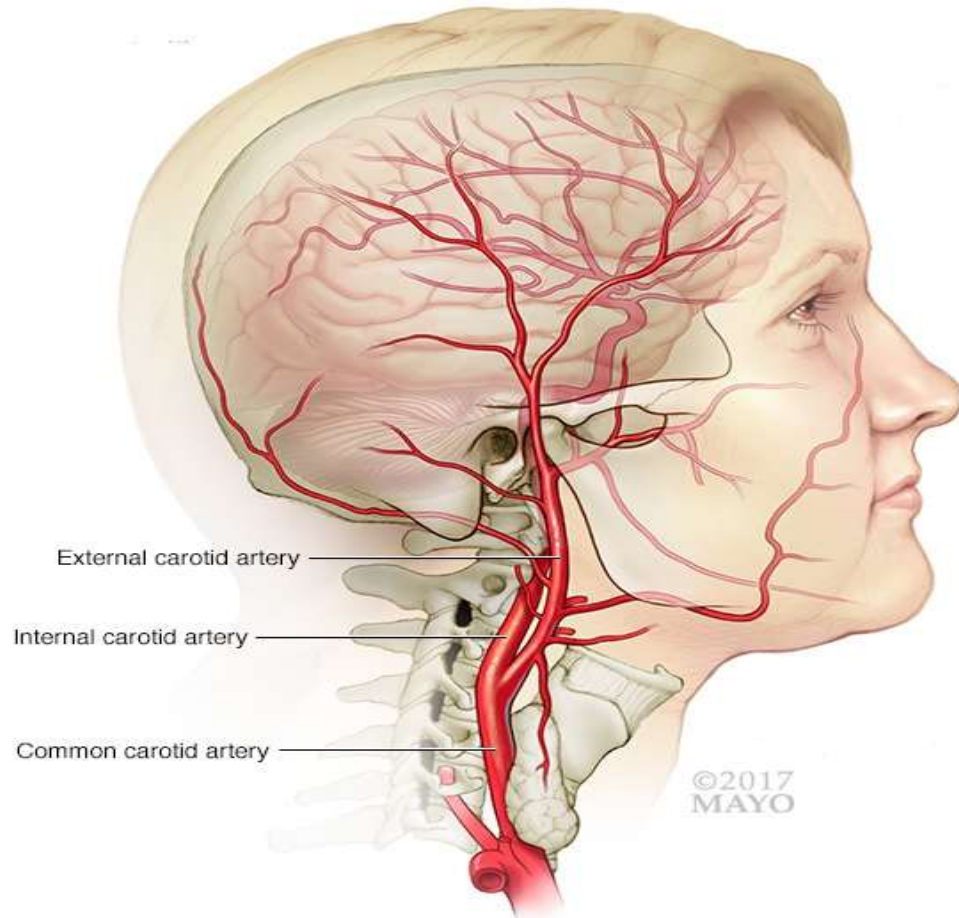


CAROTID ANGIOGRAPHY

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Carotid artery

The carotid arteries are a pair of blood vessels located on both sides of your neck that deliver blood to your brain and head.

Computed tomography Angiography

Computed tomography angiography (also called CT angiography or CTA) is a computed tomography technique used for angiography—the visualization of arteries and veins—throughout the human body, using contrast injected into the blood vessels, images are created to look for blockages, aneurysms (dilations of walls), dissections (tearing of walls), and stenosis (narrowing of vessel).

Carotid angiography

Carotid angiography is a diagnostic imaging tool that uses dye, or contrast, and a special X-ray machine to study the health of veins, arteries and blood flow.

Carotid angiography is the best test available to identify and measure blockages in the carotid arteries of the neck. The test may also show whether surgery to reopen a blocked blood vessel is the best medical option, as well as determine the patient's risk for a future stroke.

Indications

- Suspected occlusion of the carotid arteries.
- Evaluate or confirm the presence of narrowing or blockage in carotid arteries
- Determine risk for future stroke
- Determine the need for further treatment (angioplasty or surgery)
- Stricture of the carotid arteries
- Perform a minimally invasive procedure, carotid stenting, to fix the narrowing in the carotid artery

Contra-indications

- Pregnancy
- Unstable vital signs
- Allergic to contrast media
- Altered kidney function

Preparation

- Take consent from patient.
- Ask patient about risk and benefit of procedure.
- Ask patient to wear a hospital gown during the procedure.
- Ask patient to remove all radio-opaque objects from region of interest.
- Nil per oral.
- Ask patient about the medications they taken.
- Ask patient if they are allergic to any drug or contrast media.

Technique

- Small incision is given.
- Fluoroscopy is used to guide the needle to the proper position.
- Needle is then removed after placing guide wire in the artery and vascular sheath is inserted over the guide wire
- Catheter is then inserted along the guide wire through the sheath.
- When the catheter is in the correct position, the wire is pulled out and dye is injected through the catheter.
- Images are acquired during contrast injection.

PROTOCOL

- **Patient positioning**

Head first, supine with arms by the side of the trunk with hands tucked under the hips.

- **Topogram/Landmark**

Lateral, level of the forehead

- **Mode of scanning**

Helical with single breath hold technique

- **Scan orientation**

starting location- arch of the aorta

end location-2-3 cm above the sella

- **Gantry tilt**

Nil

- **Field of view**

Just fitting the region of interest

- **Contrast administration**

Intravenous monophasic

- **Volume of contrast**

100-120 mL

- **Rate of injection of contrast**

4-5mL/sec

- **Scan delay**

10-15 sec

- **Slice thickness in Reconstruction**

1.0-1.5mm

- **Slice interval in Reconstruction**

0.5-0.75mm

- **Reconstruction Algorithm**

Smooth

- **3D-Reconstructions**

MIP, VRT

Adverse reactions

- A reaction may occur whenever iodine contrast is injected. These reactions range in severity and it is difficult to predict if they will occur. With the current practice of using low-osmolar contrast these adverse reactions only occur in ~0.1% of cases. The severity of the reaction can be broken down into three groups:
- **Mild** - no treatment required: nausea, vomiting, and/or hives.
- **Moderate** - requires treatment: severe hives, lightheadedness or brief loss of consciousness, mild bronchospasm, and/or increased heart rate.
- **Severe** - requires immediate treatment: severe bronchospasm, throat swelling, seizure, severe low blood pressure, and/or cardiac arrest.

After procedure

- The catheters and sheath are removed.
- Patient need to be on bed rest for several hours under observation and vitals are checked.
- Patient is asked to drink plenty of liquids to clear the contrast material from body and tell them they may feel to urinate more frequently.
- The patient may ask to stay overnight under observation or if patient is going back to home they are suggested not to drive.
- Treatment, including medications, diet and future procedures will be discussed with patient prior to going home. Care of the wound site, activity and follow-up care will also be discussed.
- Carotid angiography takes approximately 60-90 minutes to perform.

References

- <https://www.cedars-sinai.org/programs/imaging-center/exams/ct-scans/carotid-angiography.html>
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- [CT and MRI protocol/Sumeet Bhargava/Satish k Bhargava \(Book\)](#)
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