



Jefferson | Hospital for
Neuroscience

Department of Neurosurgery

Carotid Artery Disease



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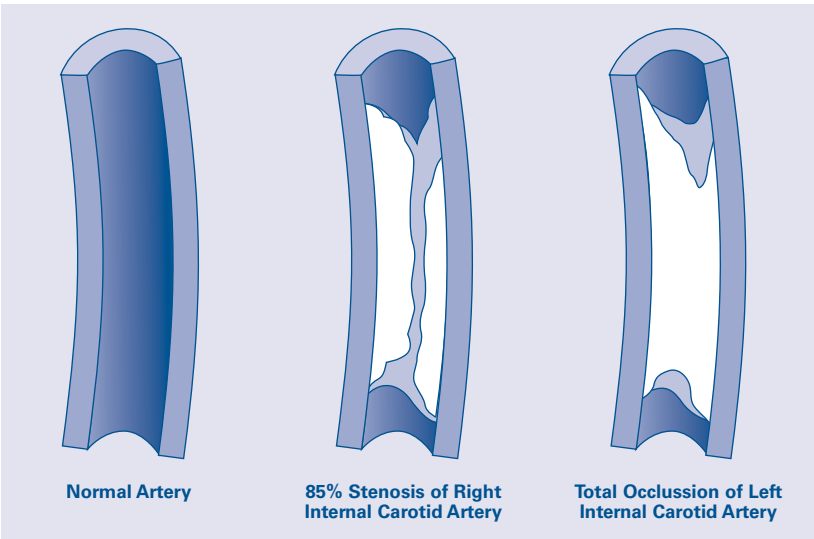


Carotid Artery Disease

There are two carotid arteries, one on each side of the neck. The carotid arteries are important because they carry blood to the brain.

Carotid Artery Occlusion (Narrowing)

Carotid arteries develop atherosclerosis just like the blood vessels of the heart (coronary arteries) do. Atherosclerosis is the build up of cholesterol and fatty deposits, called plaque, on the inside of the arteries. Over time, these deposits accumulate and cause a constriction or narrowing of the artery. This causes a decrease in the amount of blood getting to the brain which can lead to a stroke.





Treatment of Carotid Artery Occlusion

The primary reason for treating carotid artery occlusion or narrowing is to prevent stroke. Two different treatment procedures can be used to “open up” a severely narrowed or blocked carotid artery. These procedures are called “Stenting & Angioplasty” and “Endarterectomy”. Your doctor will review these procedures with you and, based on your individual history, will determine which treatment is best for you.

CAROTID ARTERY STENTING (CAS) & ANGIOPLASTY

Angioplasty, sometimes called “balloon angioplasty” is a procedure that is used to “open up” or dilate an atherosclerotic obstructed artery. Angioplasty is performed in combination with an angiogram (also called an arteriogram). The angiogram is a procedure that uses x-rays and a special dye (contrast) to visualize blood vessels in the neck and brain.

Evening Before Procedure

- Nothing to eat or drink after midnight.
- You may brush your teeth or take medicine with a small sip of water.
- You may take your regular medicine unless you were told not to do so.

Day of Procedure

- Report to JHN (Jefferson Hospital for Neuroscience), 900 Walnut Street at 6:30 AM.
- Convenient parking is located in the parking garage attached to JHN at 900 Walnut Street. You enter this garage on 9th Street (left-hand side) between Locust & Walnut Streets. Parking is not discounted at this site.
- After parking, take the elevator to the 1st floor (this will be the 1st floor of the hospital). Go directly to Admissions (same floor). This is where you sign in.

- After signing in, you will be brought to the Interventional Neuroradiology (INR) suite or to a waiting area or Day Surgery Unit if your procedure is scheduled for a little later that day.
- While you are having your procedure, your family may go to the Waiting Room which is located on the 6th floor across from the elevators. This room has a phone that your doctor will use to notify your family when your procedure is done. Your family can also obtain a beeper at the Nurses' Station if they need to temporarily leave the waiting area.

Before The Procedure

- You will change into a hospital gown.
- You will be seen by the Anesthesiologist. You will be connected to monitoring devices so your heart rate, blood pressure and breathing can be checked throughout the procedure.
- A nurse will insert an IV into your arm vein. Medicine will be put through your IV to make you fall asleep.
- You will be in a "twilight sleep". This means you will be asleep but you'll be able to breathe on your own (you won't need a breathing tube).
- You will get blood thinners during the procedure. This is done as a precaution to prevent stroke.



Procedure

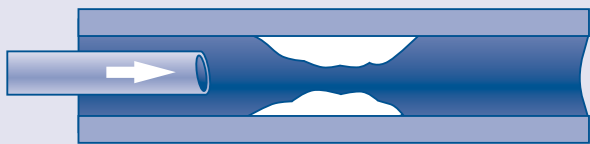
- **Angiography**

After cleansing and numbing your groin area, your doctor will insert a tiny tube, called a catheter, into the artery in your groin. The doctor will guide this catheter to the area that is to be studied by watching it on a TV-like monitor. A small amount of x-ray dye (contrast) will then be injected into the catheter to make the carotid blood vessel visible while the x-ray pictures are being taken. The x-ray pictures will allow your doctor to visualize your carotid artery.

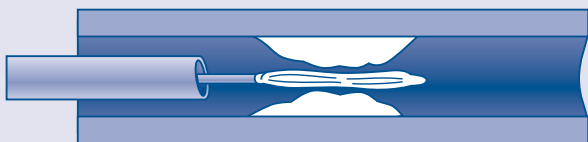
- **Angioplasty**

The angioplasty is then done by inserting a special tiny balloon through the catheter into the narrowed part of the carotid artery. The balloon is then slowly inflated. As the balloon inflates it presses the plaque (fatty deposits) against the wall of the blood vessel and in so doing, it widens or opens up the artery. At this point, the stent is inserted. A stent is a soft mesh-like piece of material that is placed into the narrowed part of the artery. The stent acts as a scaffold or bridge to keep the artery open. After the stent is inserted the balloon is removed. The stent remains in the artery to keep it open.

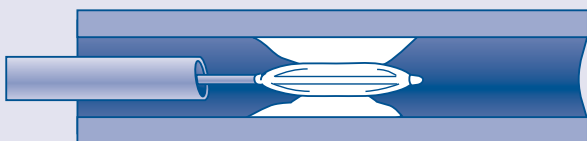
- The CAS procedure takes about two hours to complete.



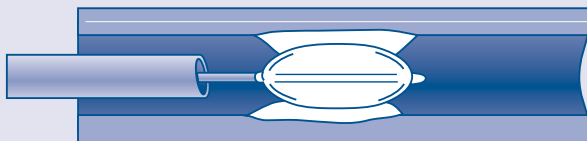
Catheter in Narrowed Vessel



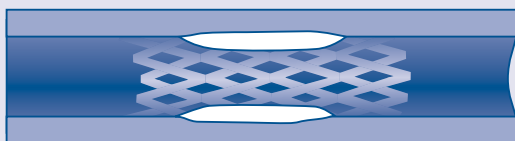
Balloon Catheter with Uninflated Balloon



Balloon Catheter with Partially Inflated Balloon



Balloon Catheter with Inflated Balloon



Dilated Vessel with Stent in Place

Angioplasty



After The Procedure

- You will be brought to the Neurosurgical Intensive Care Unit (NICU).
 - Your family can visit you in the NICU.
 - There are no phones in the NICU patient rooms because we want you to rest as much as possible after surgery.
 - Most patients are discharged from the hospital within a day or two after the procedure.
- The catheter will be removed from the artery in your groin area when the blood thinners you received during the procedure wear off. This may take several hours. Immediately after the catheter is removed, pressure will be applied at the site for about 20 – 30 minutes. Materials may also be used to seal the catheter puncture site and make sure the bleeding has stopped. After the catheter has been removed, **YOU MUST LIE FLAT IN BED WITH YOUR LEG STRAIGHT** for approximately 6 hours. This is to give the artery plenty of time to heal and to make sure there is no bleeding.

When You Go Home/Discharge Instructions

- Call the office to schedule a follow-up appointment for 4 – 6 weeks after your procedure. You may also be instructed to schedule a follow-up carotid ultrasound study at this time.
- Do **NOT** drive (you may be a passenger) until you are seen in the office for your follow-up visit.
- Do **NOT** lift anything heavier than a newspaper, or return to work until you are seen in the office for follow-up.
- Try **NOT** to use the stairs too much.
- Take it easy. Rest with your leg on a pillow.
- There will be a clear dressing over the groin area (where the catheter was). You may remove this dressing but keep the area clean and dry. Showering is OK.
- A little bruising at the groin area (where the catheter was) is normal.
- Some pain in the groin area is normal. You may take Tylenol or Tylenol Extra-Strength for discomfort. Please call the neurosurgery office if these medications fail to relieve your pain.

- Call the office if you have:
 - Fever higher than 101.5°F (Check your temperature *before* taking Tylenol since Tylenol will lower a fever)
 - Any unusual drainage, increase in redness, swelling, or pain at the incision site
 - Any unusual bleeding, particularly in patients who are taking blood thinners like Aspirin and Plavix.

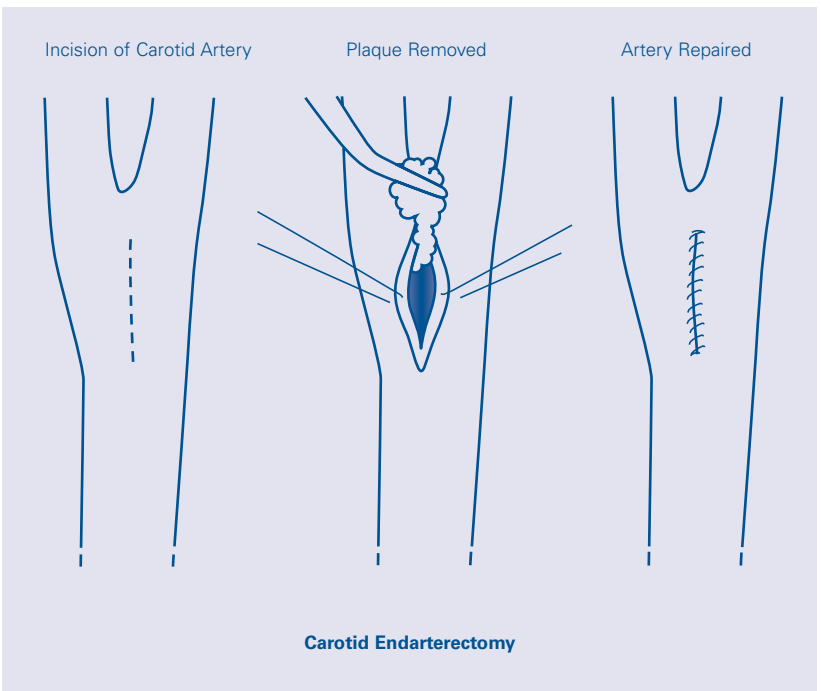
**Call OUR OFFICE Or Go To The EMERGENCY ROOM
If You Experience Any Of The Following:**

- Weakness or numbness in your arms or legs
- Change in the color of the leg that had the catheter inserted
- Trouble seeing
- Difficulty talking.
- Any unusual bleeding from any site
- If the bruising at your groin area (where the catheter was) becomes significantly larger and raised or starts to bleed.



CAROTID ENDARTERECTOMY

Carotid endarterectomy is a surgical procedure that involves making an incision on the side of the neck over the region of the carotid artery. An incision is then made into the carotid artery and the plaque and fatty particles that are causing the narrowing are gently scraped away. Removing the plaque is done through a process that is much like the way a roto-rooter removes a clog in the drain. The passageway is made broader and this allows for increased blood flow. The artery and the neck wound are then closed with stitches.



Evening Before Procedure

- Nothing to eat or drink after midnight.
- You may brush your teeth or take medicine with a small sip of water.
- You may take your regular medicine unless you were told not to do so.

Day of Procedure

- Report to JHN (Jefferson Hospital for Neuroscience), 900 Walnut Street at 6:30 AM.
- Convenient parking is located in the parking garage attached to JHN at 900 Walnut Street. You enter this garage on 9th Street (left-hand side) between Locust & Walnut Streets. Parking is not discounted at this site.
- After parking, take the garage elevator to the 1st floor (this will be the 1st floor of the hospital). Go directly to Admissions (same floor). This is where you sign in.
- You will then be escorted to the 5th floor.
- While you are having your procedure, your family may go to the Waiting Room which is located on the 6th floor of JHN, across from the elevators. This room has a phone that your doctor will use to notify your family when your procedure is done. Your family can also obtain a beeper at the Nurses' Station if they need to temporarily leave the waiting area.

Before the Procedure

- You will change into a hospital gown.
- You will be seen by the Anesthesiologist. You will be connected to monitoring devices so your heart rate, blood pressure and breathing can be checked throughout the procedure.
- A nurse will insert an IV into your arm vein so medication can be given to help you fall asleep.
- You will put to sleep with a general anesthetic.



Procedure

- An incision is made on the side of your neck at the site of the blocked carotid artery. The neurosurgeon opens the carotid artery and the fat and cholesterol build-up is removed from the walls of the artery. Then the artery and the neck incision are stitched (sutured) closed (see illustration on page 8).
- The procedure generally lasts about 1 – 2 hours.

After The Procedure

- You will be brought to the Neurosurgical Intensive Care Unit (NICU).
 - Your family may visit with you in the NICU.
 - There are no phones in the NICU patient rooms because we want you to rest as much as possible after surgery. You will stay in the NICU for about 24 hours so you can be closely observed.
- Most patients are discharged from the hospital within 1 – 3 days after surgery.

When You Go Home/Discharge Instructions

- Call the office (215-955-7000) to schedule the following appointments:
 - If you leave the hospital with stitches or staples, call the office and set up an appointment to have them removed at 2 weeks after your surgery.
 - Exception: Patients who have *dissolvable* stitches do not need to schedule an appointment for stitch removal since dissolvable stitches disappear on their own in about a week. You will be told the type of stitches you have before you are discharged from the hospital.
 - Schedule your routine follow-up appointment for 4 – 6 weeks after your surgery. You may also be instructed to schedule a follow-up carotid ultrasound study at this time.
- Do NOT drive (you may be a passenger) until you are seen in the office for your follow-up visit.
- Do NOT lift anything heavier than a newspaper, or return to work until you are seen in the office. Most activities can generally be resumed within 2 weeks as long as the activities are not physically demanding.

- You may have some neck discomfort and swallowing may be a little difficult for a few days after surgery. This is normal. You may take Tylenol or Tylenol Extra-Strength for discomfort.
- Avoid turning your head too often, or too quickly, during your recovery.

Incision/Wound Care Instructions

- Do NOT get your stitches or staples wet.
- Do NOT shower until *after* your stitches or staples are removed (approximately 2 weeks).
- You may clean your incision area with a solution of half hydrogen peroxide and half water.
- Do NOT put cream or ointment on your stitches/staples.
- It's normal for your incision to feel numb and get itchy. Avoid scratching the area since this can cause infection.
- Wound/incision discomfort is normal after surgery. You may take Tylenol or Tylenol Extra-Strength for your pain. Please call the neurosurgery office if these medications fail to relieve your pain.
- Call the office at 215-955-7000 if you have:
 - Fever higher than 101.5°F (Check your temperature *before* taking Tylenol since Tylenol will lower a fever).
 - Any unusual drainage, or an increase in redness, swelling, and/or pain at the incision site.

Go To The EMERGENCY ROOM

If You Experience Any Of The Following Problems:

- Weakness or numbness in your arms or legs
- Visual problem
- Speech problem

**IF YOU HAVE ANY QUESTIONS, PLEASE
CALL THE OFFICE AT 215-955-7000.**



Notes



Jefferson Hospital for Neuroscience

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