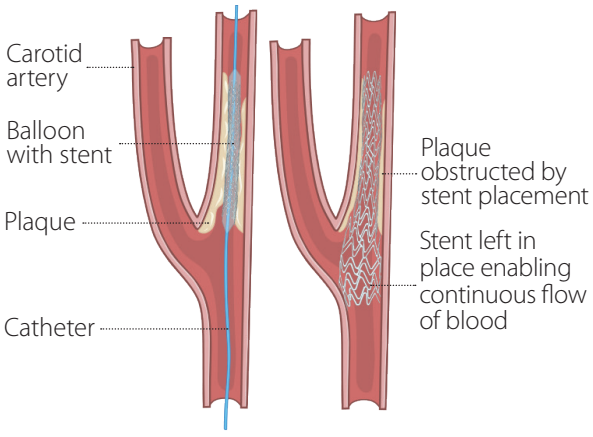
Carotid stenting

The carotid artery is the blood vessel in the neck that supplies blood to the brain. Narrowing or blockage of this vessel can cause temporary loss of vision, a mini-stroke, or a full stroke. The narrowing is usually caused by thickening and hardening of the wall of the artery caused by a gradual build-up of fat and calcium (plaque) on the inner lining which reduces blood flow when the vessel gets too narrow. Bits of the plaque or bits of clot can become loose, break off and travel to the arteries of the brain and cause a blockage. This blockage starves that piece of brain of blood. Stenting is a minimally invasive (pinhole) procedure where a wire mesh tube called a stent is put inside the carotid artery to open it up and keep it open. The procedure is done using X-rays to guide the stent to the right position in the interventional radiology unit.



Carotid artery stenting

What are the benefits of carotid stenting?

Placing a stent into the carotid artery at the place it is most narrow helps to improve the blood flow to the brain. When the stent has been placed, the plaque is trapped between the stent and the wall of the artery. These two effects significantly reduce the risk of suffering a stroke.

Another option for treating this condition is called carotid endarterectomy, which is an open surgical operation. You should discuss your condition with your doctor to find out the best treatment option for you. Some people may end up having both endarterectomy and stenting if endarterectomy is performed first and is not successful.

How do I prepare for the procedure?

It is important to discuss the medications you currently take with your doctor, as some medications need to be stopped before the procedure, particularly if you take any medications that slow the heart rate (e.g. bisoprolol).

Before carotid stenting is performed, you will need to start taking blood thinning medications called anti-platelet agents, like aspirin and clopidogrel.

You will need to let the nurses and doctors know about any allergies you have, especially if you are allergic to contrast – the liquid that your interventional radiologist injects into your arteries to see them on the screen.

Blood tests will be performed before the procedure to make sure that you are not anaemic, that your blood is clotting normally and that your kidneys are working normally.

The procedure

The procedure starts with the interventional radiologist getting into your arteries through a very small hole made in either your groin

(femoral artery) or your wrist (radial artery). Your skin will be disinfected, and local anesthetic will be given. Sometimes, you may be given sedation to make you sleepy during the procedure. You will also be given a medication to thin the blood during the procedure. Your blood pressure, heart rate, and oxygen levels will be monitored during the procedure.

When the local anaesthetic has numbed your skin, a small tube called a sheath will be placed into the artery under the incision. Everything else that is used for the procedure – the wires, catheters and the stent will be passed through this tube, which makes the procedure more comfortable for you. A narrow plastic tube called a catheter will be inserted into the blood vessel through the sheath. The catheter is used to guide a wire to the carotid artery. The position of the wire is monitored using X-rays, and contrast is injected during the procedure to see your blood vessels on screen. Once the wire is in a good position, the collapsed stent is slid over the wire to the narrowing in the artery and then opened. This opening up is sometimes helped by sliding a small balloon into place and inflating it inside the stent to open the stent completely and apply it to the walls of the artery.

At the end of the procedure, the wires, catheters, and the sheath will be removed, and pressure applied at the groin or wrist to prevent bleeding. Sometimes, a special device (plug) may be used to prevent bleeding.

What are the risks?
There may be bleeding or bruising at the site of the puncture. In case of a lot of blood loss, you may need a blood transfusion. In some cases, there can be a small out-pouching of the blood vessel at the site of the puncture. This can be treated with ultrasound and injection of a clotting medication, or by an open operation.

If a part of the plaque which causes narrowing of the vessel breaks off and travels up into the blood vessels in the brain during the procedure, it can cause a stroke.

The other risks include infection, allergic reaction to the contrast (X-ray dye) or kidney injury due to the contrast.

What should I expect after the procedure? What is the follow up-plan?
You will be closely monitored for a few hours after the procedure to ensure there are no immediate complications. You may be asked to lie flat for a few hours. You can eat and drink as usual. If there are no complications, you will be allowed to go home the same day or the following day. You will need to take medications to prevent a blood clot from forming forming within the stent. One of these medications will need to be taken for your rest of your life.

You will have follow-up appointments for a scan to make sure the stent is staying open. This may then be done on a yearly basis, as decided by your doctor.

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