

Angiogram, Balloon Angioplasty and Stent Placement

for Peripheral Arterial Disease

What to expect before, during and after these procedures

Check in at:

Toronto General Hospital
Medical Imaging Reception
1st Floor – Munk Building

Date and time of my angiogram:

Date: _____ Time: _____

My follow-up appointment:

Date: _____ Time: _____



What is an angiogram?

An angiogram is a test that lets your doctor see how your blood is flowing (circulating) through your arteries. Using special x-rays, an angiogram shows narrow or blocked arteries, and normal blood vessels. The results are like a “route map” of the blood vessels in your body.

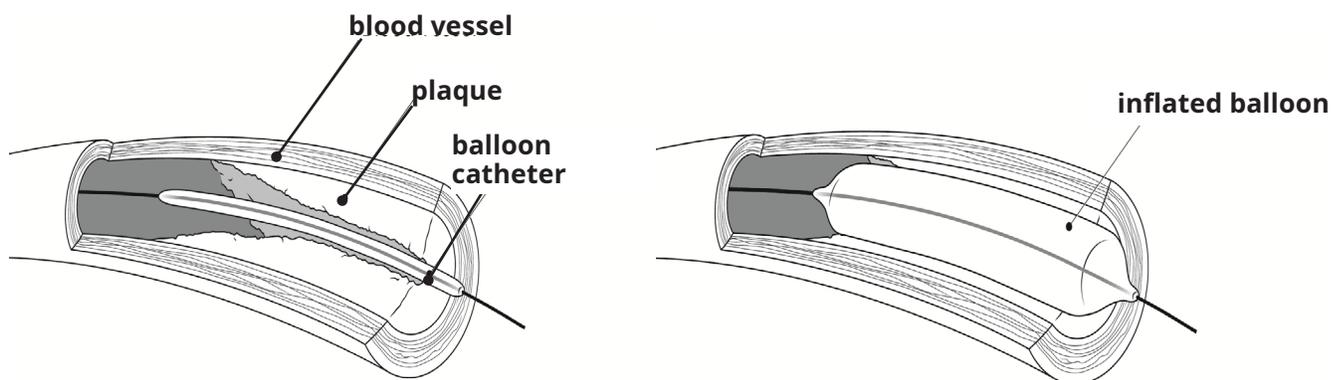
Since arteries do not show up on ordinary x-rays, a dye called a **contrast** is injected into the arteries to make them visible for a short period of time.

Two common therapies that can be done during the angiogram are **balloon angioplasty** and **stent placement**.

What is a balloon angioplasty?

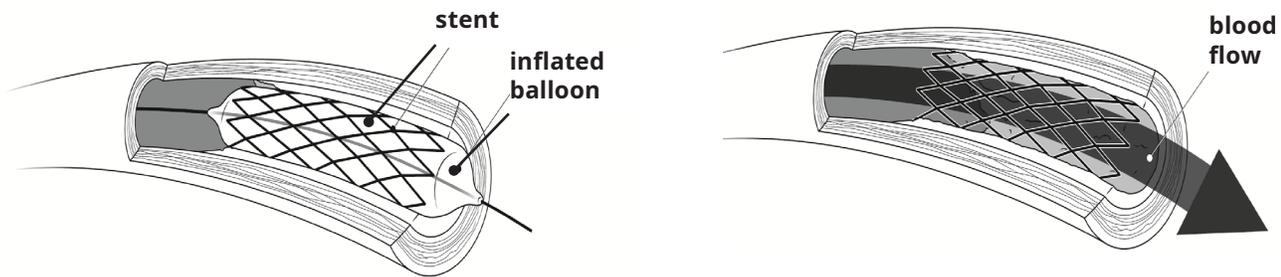
Angioplasty is an x-ray guided procedure to open up a blocked or narrowed artery. A plastic tube called a catheter is inserted close to the blocked or narrowed artery, helping a thin wire pass through the blockage or narrowing.

A special balloon is then inserted over the wire. The balloon is inflated, flattening the plaque against the artery wall allowing blood to flow again. All balloons, wires and catheters are removed at the end of the procedure.



What is a stent placement?

Sometimes a **stent** (a small metal mesh tube) is used with the balloon. The doctor places the stent into the artery to hold it open after it has been expanded with the balloon. This stent will remain in your body permanently.



How do I prepare for my angiogram or angioplasty?

Your kidneys will remove the contrast dye from your body, so it's important to check they are working well.

- You will have a blood test to check how your kidneys are working and how your blood is clotting.
- If your kidneys do not work well, there's a small chance that the dye will make things worse. To lower this risk, your surgeon will give you intravenous (IV) fluids around the time of the procedure. Your surgeon will let you know if you need to come to the hospital earlier to have the fluids.
- You should drink 6 glasses of water the day before your procedure so you are well hydrated.

You will need to arrange for:

1. An adult to pick you up after the procedure. Most people are ready to leave the hospital 6 hours after the angiogram.
 2. An adult to stay with you until the next morning. Whether you are from the city or out-of-town, you must have an adult stay with you in case you need any urgent help.
- If you live more than 2 hours away, you must stay in town. You may want to stay with a friend, relative or at a local hotel.
 - Local hotels may have special patient rates. Please ask the surgeon's office. Or, check www.uhn.ca and type "places to stay" in the search bar.



Important: If you don't arrange for an adult to pick you up and stay with your overnight, your procedure may be cancelled.



There may be changes to your medications 1 day or so before the procedure.



Please talk with your surgeon's office if you:

- ① Take a blood thinner medication such as Coumadin (warfarin), Rivaroxaban (Xarelto), Dabigatran (Pradaxa) or Apixaban (Eliquis).
 - You will have to **STOP** your blood thinner. Sometimes a different blood thinner will be used instead.
 - Keep taking your aspirin 81 mg and Plavix (clopidogrel).
- ② Have diabetes. Diabetes medications may be adjusted the morning of the procedure.

DO NOT take Metformin the morning of your procedure and for 2 days after.

- ③ If you have an allergy to contrast (x-ray) dye.
 - You will need to take medication before the procedure. This will help prevent another reaction from happening.

What happens the morning of the procedure?

Do not eat or drink from midnight the night before the procedure.

- Take your normal morning dose of medications (except diabetes medications) with a sip of water, unless your doctor has told you not to do so.
- Please bring to the hospital:
 - all your medications in their original bottles (including your diabetes and pain medications)
 - Ontario health card (OHIP)
- Arrive at the Medical Imaging Day Unit at the time listed on the front of this brochure. Check in at the desk.
- Remove your dentures, jewelry or makeup. Try to go to the bathroom before the procedure because it can take a few hours.
- A nurse helps you prepare for the angiogram by:
 - giving you a hospital gown to change into
 - shaving your groin
 - inserting an intravenous line (IV) into your arm
- A porter will transfer you to the Radiology Department by stretcher. The radiologist who does the procedure explains it to you first and then asks you to sign a consent form. **Please ask any questions you have.**
- We will help you transfer from the stretcher to an x-ray table so the angiogram can be done.
- The angiogram can take 1 to 2 hours. The recovery time afterwards can be up to 6 hours.

What happens during the angiogram or angioplasty and stenting?

The angiogram is done under local anesthesia. You will be awake, but your groin area will feel frozen or numb.

You may notice a lot of equipment in the room, including:

- **Fluoroscope** – this is an x-ray. It is above you and connected to a TV monitor. Depending on where the monitor is, you may be able to watch the procedure from the table.
- **Heart monitor, blood pressure cuff and oxygen monitoring probe** – these 3 pieces of equipment are attached to you during the procedure to check how you are doing.

During the angiogram, angioplasty and stenting

1. The doctor accesses your artery in a sterile way. It is very important that the work area stays germ-free. You can help by finding a comfortable position to lie very still in for the entire procedure. Let the nurse know if you need help.
2. Your groin is cleaned with an antiseptic and then draped with sterile towels. The radiologist uses a needle to give you a local anesthetic in your groin. This numbs the area. The anesthetic stings or burns a bit before it starts to work.
3. A long thin tube called a **catheter** is placed into the artery in the groin. The doctor moves it until it reaches the artery that is being looked at. As the catheter moves inside you, you may notice pressure in the groin, but you will not feel pain.
4. When the catheter is in place, the contrast dye is injected through the catheter into the arteries and take x-rays are taken. It may feel warm in the area.

5. The doctor can now see inside your artery and how well blood is moving through the vessel.
6. If a narrow or blocked artery is found, the doctor may be able to treat it. A catheter is inserted through the artery and a special balloon is inflated to open it up so more blood can flow. Sometimes a “stent” (a small metal mesh tube) is inserted into the artery to hold it open after it has been dilated.
7. At the end of the procedure, the doctor removes the catheter and balloon. The stent will remain in place permanently. The puncture site in the groin may be closed with a special tool. Pressure is placed on the area to stop any bleeding.

What happens after my angiogram?

You return to the Medical Imaging Day Unit. It's important that you stay on the stretcher with your leg straight for 4 hours. This lets the puncture site start to heal and lowers the chances of bleeding at the site.

- We check your blood pressure, pulse, needle puncture site and blood flow for a few hours after the angiogram to make sure you are recovering well.
- If you need to go to the washroom, we will help you use a bedpan or urinal.
- You will be able to take your usual medications.
- We will remove your IV before you go home.

If you feel pain or discomfort, please tell your nurse.

What do I do when I go home?

Return home after your procedure with an adult who will stay with you until the next morning.

- Rest in bed for 4 to 6 hours after the procedure. You may get up to go to the bathroom.
- To flush the x-ray dye from your body, drink 4 to 6 glasses of fluids in the first 24 hours after your procedure.
- You can eat normally again.
- You can do light activities 1 day after the procedure such as walking and fixing light meals. You should avoid heavy lifting, stooping or bending for 2 days to reduce the risk of bleeding at the arterial puncture site.
- You can drive a car after 24 hours as long as you are not taking pain medication.
- You can remove the dressing over the needle puncture site yourself after 24 hours.
- Bruising at the needle puncture site is common and usually goes away on its own, after 7 to 10 days.

Important

- If you take Metformin for diabetes, stop taking it for 2 days following the angiogram, and then start taking it again.
- A reaction to contrast dye can happen up to 7 days after it was injected. **Let your surgeon know if you had a reaction.** The delayed reaction is usually mild (for example, an itchy rash), but it should be recorded for your safety. This information can be used when planning future tests that need contrast dye.



Watch for these signs:

Call your doctor if:

- You see **new** swelling or bleeding at the puncture site that does not stop or go away even after you put firm pressure on the area for 15 minutes.
- Your arms or legs change colour, you lose feeling in your arms or legs, or your arms or legs do not move as they should.

If you can't contact your doctor, go to the Emergency Department at Toronto General Hospital or your nearest hospital Emergency Department.

My follow-up visit

Please call your surgeon's office to make an appointment for a follow-up visit.

Who do I call if I have questions?

If you have any questions, please call your doctor.

Surgeons

Dr. T. Forbes	416 340 3274
Dr. K. Howe	416 340 5193
Dr. T. Lindsay	416 340 4620
Dr. G. Oreopoulos	416 340 3275
Dr. G. Roche-Nagle	416 340 5332
Dr. B. Rubin	416 340 3645
Dr. M. Witheford	416 340 3868



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