

CATHETER ANGIOGRAPHY/ ANGIOGRAM

Information for patients

Introduction

- Catheter angiography/ angiogram is a minimally invasive X-ray procedure to examine blood vessels in specific parts of the body. Examination of the blood vessels over the heart (coronary vessels) is beyond the scope of this leaflet.
- One of the most common reasons for angiograms is to see if there is blockage or narrowing in a blood vessel that may interfere with normal blood flow. Angiogram is also performed for stroke or bleeding in the brain, to diagnose and locate blood vessel malformations or tumours rich in blood supply. It is sometimes used to define anatomy of blood vessels before surgery (e.g. prior to organ transplantation or plastic surgery). It is a mandatory procedure before further endovascular interventional procedures.
- This procedure will be performed by radiologists with special training in interventional radiology. The procedure will generally be performed in the Department of Radiology under X-ray guidance.
- Detailed discussion with the referring doctor regarding the reasons and risk of performing an angiogram is mandatory before you sign the consent form.

Procedure

- Normally blood vessels do not show up on plain X-ray. To perform an angiogram, the radiologist inserts a thin plastic tube (called a catheter) into a blood vessel (usually at your groin), via a small nick in the skin. A special transparent X-ray dye (called a contrast medium/agent) will be injected into the blood vessel through the catheter to make the blood vessels visible on X-ray. This is usually a compound containing iodine. In very special situations, other agent like carbon dioxide may also be used as contrast. The catheter tips have different shapes to suit individual need.
- If you have any allergies to food or drug (including previous adverse reaction to intravenous contrast medium used in kidney X-rays or CT scan), skin allergy (e.g. urticaria) or history of asthma, you **MUST** let your doctor know. Preventive drugs need to be prescribed before the examination, to reduce the risk of adverse allergic reaction to the intravenous contrast medium injected.
- The procedure will be performed under local anesthesia and aseptic technique.
- The radiologist will then puncture a blood vessel with a needle. Having made sure that the needle is correctly positioned, a slender guidewire is placed through the needle into the blood vessel. Then the needle is withdrawn, allowing the fine plastic tube (the catheter) to be placed over the guide wire into the blood vessel.
- The X-ray equipment will then be used to navigate the catheter into the desired position and then the contrast medium will be injected through the catheter and X-rays taken.
- As the contrast medium passes around your body, you may get a warm feeling which will soon pass off. The duration of each angiogram procedure is different for every patient, depending on the complexity of the condition. As a general guide, each patient having diagnostic angiogram stays in the X-ray department for about one and a half hour altogether.
- At the end of the procedure, the catheter is removed and puncture site is compressed manually for about ten to twenty minutes to stop bleeding. Occasionally, a special closure device will be used to stop bleeding from the puncture site immediately.
- Your vital signs (e.g. blood pressure, pulse) will be monitored after the procedure. Attention should be paid on the skin puncture site to make sure there is no bleeding from

it.

- As a general rule, you may be required to rest in bed for up to 24 hours after the procedure, to avoid re-bleeding at the needle puncture site.

Potential Complications

- Overall incidence of complications of angiography with puncture site at groin is below 1.8%.
- Complications can be related to the puncture site, to the catheter/guidewire or to the contrast medium injected.
- Less than 1 in 200 patients will have complications related to the puncture site in general. There may occasionally be a small bruise (called haematoma) around the needle puncture site. Normally it is self-limiting. There is however, a slight chance that the bruise may become large, requiring surgery to drain it in hospital. Rarely, the blood vessel at the puncture site will be thrombosed/obstructed or very rarely, abnormal communication is formed between an artery and a vein. Only 1 in 10,000 requires limb amputation.
- A big clot may compress adjacent nerve and cause paralysis of the arm or leg: rare.
- Complications related to catheter or guidewire also occur in less than 1 in 200 patients. Among these, perforation of the blood vessel during catheter/guidewire manipulation and contrast extravasation are the more common complications. Dislodgement of plaque in blood vessel wall causing distal vascular obstruction and tissue damage may occur. If the radiologists need to manipulate the catheters and guidewires in the aortic arch in the chest to retain the shape of catheter, plaque in the aorta may dislodge and flow to the brain and cause stroke: less than 1 in 100.
- Breakage and knot forming of catheter or guidewire is very rare, this may require surgical removal.
- Angiogram of blood vessels in the brain is associated with a slightly higher complication rate of permanent stroke and/or death. Most medical centres reported an overall complication rate for cerebral angiogram of less than 1%.
- The overall adverse reactions related to iodine-base non-ionic contrast medium is below 0.7%. The mortality due to reaction to non-ionic contrast medium is below 1 in 250,000.
- Overall death related to angiography is about 3 in 10,000.
- Despite these possible complications, angiography is normally very safe. Medical staff will take every step to reduce their likelihood.

Disclaimer

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