

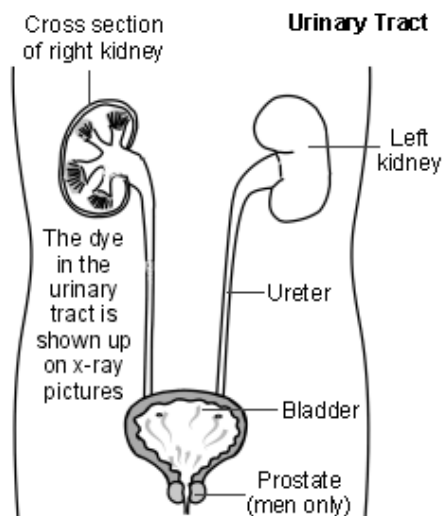
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Intravenous urography (Pyelography)

Intravenous urography is a test that uses X-rays and a special dye to help assess your kidneys, ureters, bladder and urethra.

Note: the information below is a general guide only. The arrangements, and the way tests are performed, may vary between different hospitals. Always follow the instructions given by your doctor or local hospital.

What is intravenous urography?



Intravenous urography (also known as intravenous pyelography) is an X-ray procedure which is used to assess problems in your kidneys, ureters, bladder and urethra. These structures make up your urinary tract. The ureters are tubes which go from each kidney to your bladder. The urethra is the tube from your bladder that passes out urine.

The urinary tract does not show up well on ordinary X-ray pictures. However, with intravenous urography a contrast dye is injected into a vein (an 'intravenous' injection). The dye travels in your bloodstream, concentrates in your kidneys, and is passed out into your ureters with urine made by your kidneys.

The dye blocks X-rays so the structure of your kidneys, ureters and bladder shows up clearly as white on X-ray pictures.

The X-ray pictures produced are called an intravenous urogram (IVU) but can also be called an intravenous pyelogram (IVP).

What is intravenous urography used for?

Intravenous urography can help to assess a range of problems. For example:

- **Kidney stones.** A stone in a kidney or in the tube which goes from a kidney to the bladder (the ureter) will normally show up quite clearly.
- **Urine infections.** If you have infections of your bladder or kidney which come back (recur), an IVU may help to find if you have a blockage or other abnormality of your urinary tract.
- **Blood in the urine.** This can be due to various causes such as infection, inflammation and tumours of the kidney. An IVU may help to clarify the cause.
- **Obstruction or damage to any part of the urinary tract** can often be seen on an IVU.

Intravenous urography has mostly been replaced by [CT](#) urography and [MRI](#) urography scans, as these tend to give better images of the bladder, ureters, and kidneys. However, intravenous urography is still sometimes used, especially if CT or MRI scans are not available.

How to prepare for intravenous urography

- Your kidneys have to be able to filter the dye. Therefore, it is seldom performed if you have kidney failure. Before the procedure you may need a blood test to check that you do not have kidney failure.
- Tell your doctor if you have any allergies, especially allergy to contrast dyes such as iodine.
- You may be asked not to eat for several hours before the procedure. This ensures that your gut (intestines) is empty of food, which makes the X-ray pictures clearer.

- You may be given some **laxatives** to take for a day or so before the procedure. The aim of this is to clear the intestines, which will make the X-ray pictures clearer.
- You may be asked to sign a consent form to confirm that you understand the procedure.
- You will need to remove any metal objects or jewellery that might interfere with the X-ray pictures.
- If you have diabetes and take a medicine called metformin you may need to stop the metformin for two days prior to the procedure. This is because the combination of metformin and contrast dye may affect the kidneys. (You should discuss this, and how to manage your diabetes over this period, in more detail with your doctor.)

How is intravenous urography done

- You will be asked to wear a hospital gown and to lie on a couch.
- Contrast dye is then injected into a vein in your hand or arm. This may sting a little. The dye then starts to filter through the kidneys into the tubes which go from each kidney to the bladder (the ureters).
- A series of X-ray pictures is then taken over your tummy (abdomen), usually every 5-10 minutes for up to 60 minutes.

You stay on the couch between each X-ray picture; however, you may be asked to get up to empty your bladder before the final X-ray picture is taken.

The procedure usually takes about 30-60 minutes. Some pictures, however, may be taken hours later in certain circumstances.

You should be able to go home as soon as the procedure is finished. You can eat normally straight afterwards.

Side-effects from intravenous urography

An intravenous urogram involves exposure to X-rays, a type of radiation. This can increase the risk of developing cancer in the future, although the additional risk is low. The amount of radiation from an intravenous urogram is about the same as the amount of radiation that you would be exposed to in a year's worth of normal life.

Common side-effects include:

- A flushing or warm feeling at the injection site when the dye is being injected.
- A metallic taste in the mouth.

Uncommon side-effects include:

- An allergic reaction to the dye.
- Acute kidney injury.

An allergic reaction to the dye occurs in a small number of cases. Symptoms may be mild – for example, an itchy skin rash and some mild swelling of the lips. More severe symptoms are extremely rare – for example, breathing difficulties and collapse due to [low blood pressure](#).

Who should not have intravenous urography?

Pregnant women, if possible, should not have any [X-ray tests](#), as there is a small risk that X-rays may cause an abnormality to the unborn child. This is why women are asked before having an X-ray if they are, or might be, pregnant.

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