Contrast agent for radiotherapy CT (computed tomography) scans

Radiotherapy Department
Patient information series

№11
If you need a large print, audio or translated copy of the document, please contact us on:

020 3447 3711 (Direct line)
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We will try our best to meet your needs.
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Introduction
This booklet has been written for patients who are about to be given contrast agent for their radiotherapy CT (computed tomography) scan. You are having a CT scan with contrast agent to help plan your radiotherapy treatment. By getting precise details about your cancer, we can target your treatment more effectively. We understand that some patients are anxious about having a CT scan. Let us know if you have any questions or concerns.

What is a CT scan?
A CT scanner takes images of your body, using X-rays, and processes them using a computer. The system uses several X-rays, taken at different angles, to produce detailed images of the inside of your body. We will use these detailed images to plan your radiotherapy treatment.

What are the risks of having a CT scan?
During a CT scan, you are exposed to radioactive X-rays. The level of radiation you receive is very carefully controlled and is unlikely to cause you any problems. The risk of complications (such as damage to body cells) increases the more times you have a CT scan. Because CT scans use several X-ray images, the dose of radiation is higher than that received from a normal X-ray. Despite these slight risks, your doctor believes the benefits of having accurate treatment planning provided by CT scans greatly outweighs the risks of the scan.

X-rays can harm unborn children, so you must let us know if there is any chance that you may be pregnant.

What is CT contrast agent?
CT contrast agent is used to enhance the images produced by CT scans. Contrast agents are also called “contrast mediums” and “dyes”. There are different types of contrast agent that can be used. Some are given by injection into a vein (intravenously), others are swallowed.
What alternatives to contrast agent are available?
The majority of patients requiring radiotherapy will require a CT scan to accurately plan their treatment. If you choose not to proceed with a CT scan using contrast agent, it will be more difficult for us to plan your treatment effectively. Contrast agent allows us to visualise your internal organs better. However, we will still be able to plan your radiotherapy treatment without contrast agent using a CT scan.

If you would like to discuss possible alternatives, please speak to your doctor or radiographer.

The two main forms of CT contrast agent we use are:

**Intravenous (IV) CT contrast agent**
Intravenous CT contrast agent is given by an injection through a fine plastic tube called a “cannula”. The cannula is normally placed in your hand or arm, using a small needle. It is then connected to a machine that gives the contrast agent.

The contrast agent is clear and contains iodine. The contrast agent flows to the heart and passes through the body's bloodstream, then back to the heart. It is removed from the blood by the kidneys and liver.

**What are the risks of IV CT contrast agent?**
Most people experience no serious unwanted effects from IV CT contrast agent.

It is common to feel hot and “flushed” and to experience a metallic taste when the contrast agent is first given. This normally goes away after about a minute.

Some people feel like they are emptying their bladder when the contrast agent is first given. This tends to go away quite quickly.

Some people are allergic to the iodine (or other ingredients) in the contrast agent. Allergic reactions can cause itchy skin, hives (swollen lumps on the skin), and may also cause nausea and vomiting.
Very rarely, some people have more serious reactions to the contrast agent, such as breathing difficulties, kidney problems or swelling of the throat or other parts of the body. In exceptional cases, these reactions can be life-threatening.

If you are allergic to iodine, have had an allergic reaction to contrast agent before or have any other allergies, you must tell the person who is doing your scan.

Medicines and equipment to deal with allergic reactions are kept close to where you will have your scan.

Very rarely, the contrast agent may cause some kidney damage in people who already have kidney problems. You must tell the radiographers if you have any kidney problems.

Other health problems (such as asthma) can increase the risk of having a reaction to the contrast agent or difficulties removing the iodine from your body. Your radiographer will ask you a number of questions to check that it is safe for you to have a contrast agent.

You may have some bruising from the needle. You can reduce the risk of bruising by applying pressure to the injection site for ten minutes after the cannula has been removed.

How do I prepare for my scan?
On the day of your scan, it is best not to eat until your scan is finished. Diabetic patients, however, should eat as normal. It is important to be well-hydrated before your scan. All patients can drink as normal. You will be asked to drink 500ml of water before your scan to help protect your kidneys.

For patients who are unable to take fluid orally (who have a PEG tube inserted), you will be required to syringe ideally 500ml, but at least 250ml, of water through your PEG over a period of 30 minutes.

Following your scan, it is advisable to have an intake of 100ml of water every 30 minutes. This is aiming to take in two litres of water over the
rest of the day. You only have to intake water during waking hours. It is not necessary for you to continue through the night. If you have any further questions or concerns please speak to the radiographers.

You will either need to have a full or an empty bladder for your scan. We will tell you what to do when you arrive. Water is available in the waiting room.

**For diabetic patients receiving IV contrast**
For the purpose of your radiotherapy CT planning scan, new guidelines no longer require diabetic patients who take Metformin® to stop their medication. You may have had to do this for previous CT scans.

Following a recent blood test, the radiographers will be able to check the function of your kidneys.

If you have any concerns or questions, please discuss them with a member of staff when you attend any of your planning appointments.

**What should I do after my scan?**
All patients must drink two litres of water after the scan to reduce the risk of any kidney problems.

It is radiotherapy department policy that you remain in the department for at least 15 minutes after your scan. This is to ensure you have no side effects from the IV contrast.

If you have had an IV contrast agent and breastfeed your child, you should wait for 24 hours after your scan before you resume breastfeeding.

**Oral CT contrast agent**
Oral CT contrast agent is normally used to help give clear images of the abdomen and pelvis. The oral CT contrast agent we normally use is called Gastrografin®.

**How is oral CT contrast agent given?**
20ml of Gastrografin® is mixed with water to make a one-litre solution for you to drink. It is flavoured, but can taste bitter.
What are the risks of oral CT contrast agent?
Most people experience no serious unwanted effects from Gastrografin®. However, some patients may experience constipation and nausea after taking Gastrografin®.

Gastrografin® cannot be given to people with hyperthyroidism (an overactive thyroid). If you have heart disease, there is an increased risk of serious hypersensitivity reactions. Your radiographer will ask you some questions to check that it is safe for you to have oral CT contrast agent. It is very important to tell them about any health problems or allergies you have.

Reactions to oral contrast agent can commonly cause symptoms such as constipation, vomiting, diarrhoea and nausea. Rarely, Gastrografin® may cause itchy skin, hives (lumps on the skin), difficulty breathing, sneezing and swelling of the face. In extremely rare cases, these reactions can be life-threatening.

You can reduce the risk of unwanted effects by drinking plenty of fluids before and after your scan.

What should I do to prepare for my scan?
You can eat as normal before your scan, but it is best not to arrive with a full stomach. You will be asked to drink 500ml of water before your scan to help protect your kidneys.

If you take regular medication, you can continue to take this as normal.

What should I do after my scan?
After your scan, eat normally and drink plenty of fluids. This will help flush the contrast agent out of your body. If you become constipated, a mild laxative may help. Speak to your doctor or radiographer if you have any concerns about the oral contrast agent.
Useful contact numbers

Local

Radiotherapy Planning Department
Address: The Radiotherapy Department
235 Euston Road
London, NW1 2BU

Telephone: 020 3447 3751

Macmillan Information and Support Radiographer
Mark Williams
Direct telephone: 020 3447 3711
Main switchboard: 0845 155 5000
  ext 73711
  bleep 1458

Alternative switchboard: 020 3456 7890
  ext 73711
  bleep 1458

Email: mark.williams@uclh.nhs.uk
Where can I get more information?

Royal College of Radiologists
Website: www.goingfora.com

Health Talk Online
Website: www.healthtalkonline.org

National Library for Health
Covers all aspects of health, illness and treatments
Website: www.library.nhs.uk

NHS Direct
Telephone: 0845 4647
Available 24 hours
Website: www.nhsdirect.nhs.uk

NHS 24
Telephone: 08454 242424
Website: www.nhs24.com

NHS Choices
Website: www.nhs.uk

Patient UK
Comprehensive, free, up-to-date health information
Website: www.patient.co.uk