

Thermal or cryoablation to treat your tumour

This leaflet explains more about having thermal ablation or cryotherapy (cryoablation) to treat your tumour. It includes information about the benefits, risks and any alternatives, and what you can expect when you come to hospital. If you have any further questions, please speak to a doctor or nurse caring for you.

What is ablation?

Ablation is a way to destroy tumours without surgery. It involves insertion of one or more needles (electrodes) through the skin that will accurately target the tumour with the delivery of energy (heat or cold). This destroys the tumour cells by burning or freezing the tumour. Sometimes two or more sessions of treatment are needed before the tumour is completely destroyed.

Ablation is performed by an interventional radiologist who has a particular expertise in guiding needles using imaging. There are several consultant radiologists who deliver this treatment.

Ablation has an increasingly expanding role in the treatment of solid tumours, including certain cancers of the liver, kidneys, lungs and bones, and it is easily combined with other drug treatments (such as chemotherapy) or external irradiation (radiotherapy).

What technologies are used for ablation?

Radiofrequency and microwaves are used for thermal ablation (heat), and **cryotherapy** is used for cryoablation (cold). The electrodes are inserted using ultrasound or CT scan guidance, or a combination of both.

Radiofrequency ablation involves heating tumours with radiofrequency energy. In this procedure, the doctor guides a small needle through the skin, into the tumour. From the tip of the needle, radiofrequency energy is transmitted into the tumour, producing heat and burning the surrounding tumour cells. In the case of microwaves, the needle tip emits electromagnetic waves that boil the water inside the tumour cells to destroy them.

Cryotherapy freezes tissues instead of burning them. It involves insertion of small needles through the skin, which circulate very cold gas, and freeze the tumour by turning the water inside it into ice.

What types of tumours may be treated with ablation?

Several different types of solid tumours can be treated with thermal ablation or cryotherapy. Ablation is usually proposed for the treatment of small (less than 5cm across) tumours of the liver, kidneys, lungs, bones, spine and adrenal glands. The best results are achieved when treating single small tumours (smaller than 3cm) that have not spread to other parts of your body.

What are the benefits of ablation?

Thermal ablation and cryoablation can generally be performed without significantly affecting the patient's overall health. Most people leave hospital the next day after the treatment and can resume their usual activities within a few days.

Other benefits include:

- ablation can be performed under sedation or general anaesthetic, and this will be assessed and discussed with you at your consultation
- being well tolerated. Most patients can resume their normal routine the next day, but they may feel tired and have some local pain for a few days
- having low complication rates
- the possibility of being repeated if necessary
- that it may be combined with other treatment options like chemotherapy and radiotherapy.

What are the risks?

As with any procedure, there are some risks associated with ablation. However, by using CT scanning/x-rays or ultrasound to precisely guide the delivery of the treatment to the affected tissue, complications are rare.

Possible complications include:

- **Bleeding** – you may have bleeding in your abdomen (tummy). This is uncommon, but may mean that you need a blood transfusion. This is rare.
- **Infection** – this is usually treated with antibiotics. Infection can cause an abscess (lump containing pus), but this can be drained if required.
- **Leaking** – if the tumour is on your lung, there is a risk of air leaking out of your lung. This is called a pneumothorax. If this happens, you may feel short of breath, have persistent cough or experience some chest pain. Pneumothorax can be treated by draining the air, but your hospital stay after the procedure will be longer.
- **Injury to other parts of your body** – depending on where your tumour is, other organs, such as your bowel or stomach could be injured during the procedure. This is very rare and is treatable but you may need additional surgery.
- **Injury to the nerves** – if the tumour is near the spine or other sensitive nerves, they can be damaged, but this is rare and you may need further treatment if it happens.

Are there any alternatives?

There are other ways to treat tumours, including surgery, chemotherapy (treatment with drugs that damage cancer cells) and vascular embolization (procedure which cuts off the tumour's blood supply). There is also external radiotherapy that involves irradiating the tumour over a number of sessions to kill the cancer cells.

These alternatives may not be suitable for you. Please ask your doctor for more information.

How can I prepare for the procedure?

You will attend the outpatient Ablation Clinic where you will have the chance to discuss the procedure with the interventional radiologist. They will review your notes and images from previous examinations, explain whether this procedure is recommended for you, and discuss its risks and benefits. You will also have the opportunity to ask the doctor any questions you may have.

When attending the Ablation Clinic please let the doctor know if you are taking any regular medicines and if you have any allergies to any medicines. If you are taking blood thinners such as antiplatelet medicines (aspirin or clopidogrel) or any anticoagulant medicines (for example warfarin or rivaroxaban), then you may need to stop them temporarily before you have the procedure. If you are taking an anticoagulant, you might be asked to alter the dose or to temporarily change to another medicine before the procedure. If you have diabetes, you may need to alter the dose of your diabetes medicines, as you will need to fast before the procedure (see below).

Further information on stopping any medicines will be given to you by the radiologist during this consultation if necessary. Please ask us if you have any questions.

You will need to have a blood test before the ablation. Your interventional radiologist will tell you about this, how to arrange it, and also ask you for details of any other medical conditions that you have.

The night before the day of the procedure you will be admitted to the ward and your ward nurse will help you get ready. You can have a shower or bath, but do not use moisturising cream or lotion on your body (as it is oily, the antiseptic may not remove it thoroughly which could cause an infection).

A radiologist along with an interventional radiology (IR) clinical nurse specialist (CNS) will visit you to review your notes, discuss any further questions and take the consent form.

Do not eat anything for six hours before ablation, but you may drink still water up to two hours before the procedure. Take your morning medicines as usual with a sip of water unless you were advised otherwise during the ablation clinic appointment.

Our leaflet, **Having surgery**, gives you information about what to expect and how to prepare. If you have not received a copy, please ask your nurse for one.

Consent – asking for your consent

We want to involve you in decisions about your care and treatment. If you decide to go ahead, you will be asked to sign a consent form. This states that you agree to have the treatment and you understand what it involves.

If you would like more information about our consent process, please speak to a member of staff caring for you.

What happens during the procedure?

You will be asked to lie on the CT scan table, usually on your back, side or tummy. Your blood pressure, pulse and the oxygen level in your blood will be monitored.

Most patients have the procedure under local anaesthetic and conscious sedation which involves giving you two medications through your cannula to relax you and ease your pain, but you will not be asleep. You will probably forget most of the procedure afterwards but you will be awake enough during ablation to communicate with the staff. **If you are having cryoablation**, you will most likely have the procedure carried out under general anaesthetic (you would be asleep). More information about anaesthesia is available in our leaflet, **Having an anaesthetic**. If you would like a copy, please ask a member of staff.

During radiofrequency ablation, two to four electrode pads will be attached to your leg (they are not necessary during microwave ablation). These conduct the current and prevent heat burns.

The radiologist will take a series of CT images or ultrasound pictures to find the best position to insert the electrode. Once the best position is found, the electrode will be introduced through your skin and precisely positioned into the tumour. Your skin does not need to be cut as the electrode is very thin. The tumour is then heated for about 15 minutes with radiofrequency or microwave energy for ablation, or frozen for 15 to 30 minutes for cryotherapy. In the case of larger tumours, the electrode may need to be re-positioned and a second area in the tumour treated the same way,

Following the treatment, the dead tumour tissue shrinks and slowly forms an internal scar. Because there is no surgical incision (cut), ablation procedures barely affect the appearance of the skin.

Will I feel any pain?

Apart from the local anaesthetic injection, which may sting for a few seconds, we aim to make your ablation procedure as pain-free as possible. You may feel some slight to moderate discomfort during the procedure and a few patients experience a sensation of heat if the tumour is near the internal surface of the treated organ. If you are uncomfortable, please tell the nurse so you can be given more pain relief.

If you have a general anaesthetic you will be asleep throughout the procedure and you will not feel any pain.

What happens after the procedure?

You will stay in the recovery room until your ward nurse collects you. You will need to stay in bed for two to four hours, depending on how quickly you recover from the sedation. Your blood pressure and pulse will be monitored frequently.

You may have mild abdominal pain, but you will be given pain relief for this.

You can eat and drink normally, or as instructed by your nurse.

If you have a general anaesthetic, at the end of the operation, the anaesthetist will stop giving anaesthetic drugs and you will start to wake up. When we are certain you are recovering normally, you will be taken to the recovery room. Most people regain consciousness in the recovery room where nurses will monitor you while you are waking up fully. If you are in pain or feel sick, tell the nurses so they can give you treatment for this. Oxygen will be given to you through a plastic mask which covers your nose and mouth.

Once the recovery nurses are satisfied that you have recovered from your anaesthetic, you will be taken back to the ward. You will be advised when you can drink or eat.

How long do I need to stay in the hospital?

You can usually leave the hospital the next day after your procedure, as soon as you have had your follow-up CT scan to confirm the immediate success of the treatment and exclude any complications.

In a rare case of complications that may require further treatment, your stay in hospital may need to be longer.

What do I need to do after I go home?

Before you leave, your nurse will tell you how to look after yourself. You will be given painkillers to take home and advised to rest at home. The length of the time you need to recover varies from patient to patient so your nurse will give you more specific advice.

Your temperature may be slightly raised which is caused by the cells in the tumour dying. This will last for up to seven days. If you continue to have a fever for more than a week after your procedure, this might be a sign of infection and you should visit your GP or a local Emergency Department (A&E), or contact us immediately.

Will I have any follow-up appointments?

You will need to come back to the hospital for regular CT scans to check that the treatment has worked and that there is no recurrence. You will also have to be reviewed regularly by your doctor in the outpatient ablation clinic. Your doctor or CNS will give you more information about this.

Contact us

If you have any questions or concerns about ablation, please contact the Interventional Radiology Department, **t:** 020 7188 5550, Monday to Friday, 9am to 5pm. The secretary will arrange for an Interventional Radiologist or IR CNS to call you back.

Out of hours, please go to your local Emergency Department.

For more information leaflets on conditions, procedures, treatments and services offered at our hospitals, please visit www.guysandstthomas.nhs.uk/leaflets

Pharmacy Medicines Helpline

If you have any questions or concerns about your medicines, please speak to the staff caring for you or call our helpline. **t:** 020 7188 8748 9am to 5pm, Monday to Friday

Your comments and concerns

For advice, support or to raise a concern, contact our Patient Advice and Liaison Service (PALS). To make a complaint, contact the complaints department.

t: 020 7188 8801 (PALS) **e:** pals@gstt.nhs.uk
t: 020 7188 3514 (complaints) **e:** complaints2@gstt.nhs.uk

Language and accessible support services

If you need an interpreter or information about your care in a different language or format, please get in touch. **t:** 020 7188 8815 **e:** languagesupport@gstt.nhs.uk

NHS 111

Offers medical help and advice from fully trained advisers supported by experienced nurses and paramedics. Available over the phone 24 hours a day. **t:** 111

NHS Choices

Provides online information and guidance on all aspects of health and healthcare, to help you make choices about your health.

w: www.nhs.uk

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