

What is ablation?

You have been selected by your doctor to have ablation treatment for your lung tumour. Ablation is a technique that destroys tissue through heating. In order to produce the heat needles are placed into the lungs, using image guidance (e.g. CT scanning). Only a small amount of heat is produced – slightly less than a boiling kettle and the heat only travels a small distance (a few centimetres) within your body. Most of the normal lung tissue is not affected. A radiofrequency electric current or microwave may generate this heat.

What are the benefits of ablation?

Ablation can be an effective treatment for primary lung cancers and for cancers that have already spread to the lung from elsewhere, but which would be unsuitable for surgical treatment. The procedure can be repeated. You can resume your normal activities within a few days.

What are some common uses of the procedure?

RFA/Microwave ablation is used to treat early-stage lung cancer and tumours that have spread to the lungs from other cancers. Ablation is a viable and effective treatment option if you:

- Wish to avoid conventional/open surgery.
- Are too ill to undergo surgery.
- Have a small number of metastases in your lungs. These are tumours that have spread from a primary cancer located elsewhere in your body, such as the kidney, intestine or breast.

RFA/Microwave is also used to:

- Reduce the size of a tumour so that it can be more easily eliminated by chemotherapy or radiation therapy.
- Provide relief when a tumour invades the chest wall and causes pain.

RFA is not intended to replace surgery, radiation therapy or chemotherapy in all patients. It may be effective when used alone or in conjunction with these treatments.

How should I prepare?

You should report to your doctor all medications that you are taking, including herbal supplements, and if you have any allergies, especially to local anaesthetic medications, general anaesthesia or to contrast materials containing iodine (sometimes referred to as "dye" or "X-ray dye"). Your doctor may advise you to stop taking aspirin, nonsteroidal anti-inflammatory drugs (NSAIDs) or blood thinners for a specified period of time before your procedure.

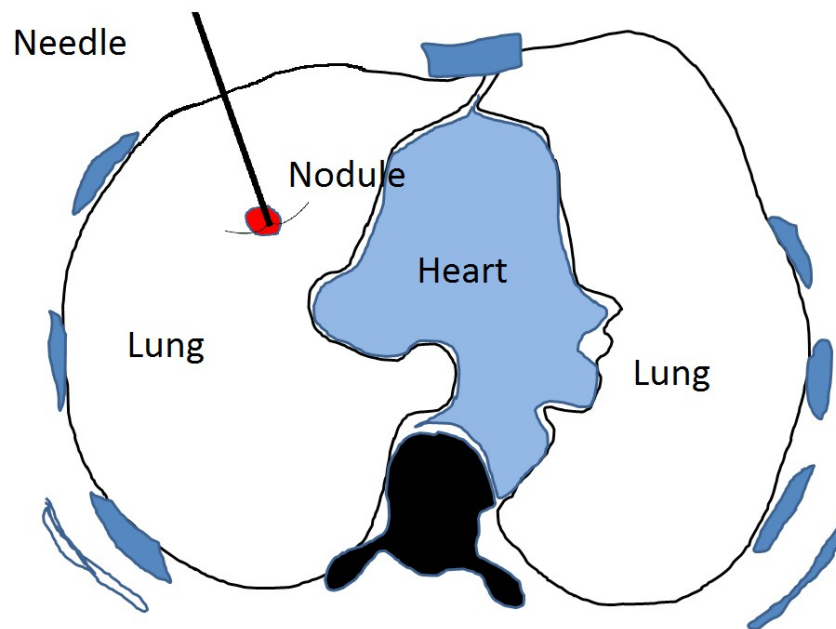
Prior to your procedure, your blood may be tested to determine how well your kidneys are functioning and whether your blood clots normally.

Women should always inform their physician and Radiology staff if there is any possibility that they are pregnant. Many imaging tests are not performed during pregnancy so as not to expose the foetus to radiation. If a radiological procedure is necessary, precautions will be taken to minimise radiation exposure to the baby.

You will likely be instructed not to eat or drink anything after midnight before your procedure. Your doctor will tell you which medications you may take in the morning. You should plan to have a relative or friend drive you home after your procedure. You may be asked to wear a gown during the procedure.

How is it done?

The procedure is normally performed in the radiology department by a Consultant Interventional Radiologist using the CT scanner. Most of the procedures will be done under local anaesthetic and sedative medicines, but some procedures may require a general anaesthetic. The Radiologist will locate the abnormality using the CT scanner. The needle will then be placed through the skin under CT guidance into the correct area. The needle will be connected to the RFA or Microwave machine to generate the heat. The needle will be then removed. That procedure could be done more than once depending on the size, number and location of the tumour(s).



The needle is passed through the skin into the nodule under CT guidance, which enables the doctor to see a cross section through the body, as in the picture.

A chest X-ray will be taken to make sure that the lung has not collapsed from an air pocket created during the procedure. If a collapse has occurred, it may be necessary to insert a small tube into the area to remove the air pocket. The tube may need to remain in place for one to several days.

Each RFA/Microwave treatment takes about 6 to 30 minutes, with additional time required if multiple ablations are performed. The entire procedure is usually completed within one to three hours.

What will I experience during and after the procedure?

Devices to monitor your heart rate and blood pressure will be attached to your body.

You will feel a slight pin prick when the needle is inserted into your vein for the intravenous line (IV) and when the local anaesthetic is injected.

If the case is done with sedation, the intravenous (IV) sedative will make you feel relaxed and sleepy. You may or may not remain awake, depending on how deeply you are sedated.

Pain immediately following the ablation can be controlled by pain medication given through your IV or by injection. Afterward any mild discomfort you experience can be controlled by oral pain medications. You may feel nauseated, but this can also be relieved by medication.

You will have a chest X-ray approximately two hours after the procedure to check for a lung collapse. This occurs in approximately 30% of patients, but only 1 in 10 patients will need to have a tube inserted in the space between the collapsed lung and the chest wall to remove the air and allow the lung to re-expand. If such a tube is placed, you may or may not need to stay in the hospital for further management. You will remain in the recovery area until you are ready to return to the ward. Most patients will stay overnight and be discharged the next day. You should be able to resume your usual activities within a few days. Only about 10% of patients will still have pain a week following radiofrequency ablation.

What happens when I go home?

Normally you will be able to go home the day after your procedure. You should expect to be off work for at least 1 week after the treatment.

You will receive follow up CT appointments at 1, 4, 7 and 10 months after treatment. Please contact the radiology department if you do not receive these.

What are the risks and benefits of RFA / Microwave ablation

Benefits

- RFA/Microwave ablation is much less invasive than open surgery when treating primary or metastatic lung tumours. Side effects and complications are less frequent and less serious when ablation is carried out.
- Patients who have multiple tumours or tumours in both lungs usually are not considered to be candidates for surgery. They may, however, be candidates for RFA/Microwave.

- Lung function is better preserved after RFA/Microwave than after surgical removal of a tumour. This is especially important for those whose ability to breathe is impaired, such as current or former cigarette smokers.
- When part of the tumour persists after RFA/Microwave, the procedure may be repeated, or radiation therapy may eliminate the remaining tumour cells. Ablation very effectively destroys the central part of a tumour—the area that tends not to respond well to radiotherapy.
- If a tumour recurs in the same region, it usually can be treated again by RFA/Microwave. The procedure may be repeated multiple times if necessary.
- Even when RFA/Microwave does not remove all of a tumour, a reduction in the total amount of tumour may help to prolong life for a significant time.
- It takes much less time to recover from RFA/Microwave than it does from conventional surgery. RFA/Microwave ablations are relatively quick procedures and recovery is rapid so that chemotherapy may be resumed almost immediately in patients who need it.
- No surgical incision is needed—only a small nick in the skin that does not have to be stitched closed.

Risks

- It is not uncommon for passage of the radiofrequency electrode to produce a condition called pneumothorax. This occurs when a collection of air or gas in the chest cavity collapses part of the lung. Usually no treatment is needed, but some patients may have a chest tube placed for up to a few days (usually) to drain the air allowing the small hole in the lung to heal.
- Significant bleeding into the lung is an uncommon complication of RFA/Microwave ablation. Fluid may collect in the space between the lung and its covering membrane. If you become short of breath, this fluid may have to be removed using a needle.
- Severe pain after RFA/Microwave is uncommon, but may last a few days and require painkillers. These should be given to you on discharge if you need them.
- Though rare, patients with certain types of underlying lung disease may become worse after RFA/Microwave ablation, and in severe cases this may be fatal. This is thought to occur in less than 1 in 800 patients.
- Any procedure where the skin is penetrated carries a risk of infection. The chance of infection requiring antibiotic treatment appears to be less than one in 1,000.

Signs to look out for:

If you experience either of the following symptoms:

- Shortness of breath and pain on breathing in
- Pain that is not controlled by regular painkillers (e.g. Paracetamol)
- Increasing fever or pain 1-2 weeks after the procedure
- Coughing up blood several days after the procedure

You should contact your GP.

Where can I get more information?

RadiologyInfo.org

<http://www.radiologyinfo.org/en/info.cfm?pg=rfalung>

Cardiovascular and Interventional Radiological Society of Europe (CIRSE):

<http://www.cirse.org/print.php?pid=96>

Contact

If there is anything else you would like to know please do not hesitate to ask us. You can contact on the telephone on the following number:

Monday-Friday 08:00-16:00

Telephone: 01603 286104

